PUBLIC INFORMATION AND KNOWLEDGE REQUISITES OF A SHELTER SYSTEM

(Final Report)

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Social Systems Program
Institute for Performance Technology
AMERICAN INSTITUTES FOR RESEARCH
Pittsburgh, Pennsylvania

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(Summary of a Final Report)

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MINIMUM INFORMATION REQUIREMENTS FOR EFFECTIVE USE OF PUBLIC SHELTERS

The first section of this report identifies the items of information that must be available in the shelter system for it to function effectively. It also discusses the audience for shelter information, the timing of information programs, and the media for shelter information campaigns. This section is based upon previous AIR analyses of the fallout shelter system, as well as studies of civil defense public opinion, attitudes, and behavior conducted by other research groups.

Threat Warning Information

This subject was not pursued in detail because many existing research studies cover this topic. Two items were identified as constituting minimum information requirements. The first was information that a threat exists, conveyed in a message that had both audibility and authenticity. The second item was estimated time until threat materializes.

Information that Legitimizes Threat Warning

Evidence from existing studies suggests that whatever signal is used to warn the public, people would in general introduce an added step between receipt of the warning stimulus and the movement to shelter response. This step is one of verification. Because the public will naturally seek verification information, and can easily be diverted to inappropriate verification procedures with dysfunctional consequences, it was felt that an unambiguous, authoritative, easily received, rapidly disseminated verification message constituted a key information requirement.

Information Pertaining to Shelter-Taking

The following were identified as the package of minimum information requirements associated with the act of shelter-taking.

Identification of public shelters as a survival solution. Some segment of the population will be unaware of the public shelter as a realistic survival alternative. For that portion, the identification of the shelter is an information requirement.

Information about location of public shelters. Specific, up-to-date information on shelter locations and assignments is required. Daily and seasonal variations in community activities must be fit into the information scheme.

Means for reaching assigned shelter. This information requirement covers optimum modes of transportation and routes to shelter, and includes also seasonal and other variations in modes and routes.

Alternate shelters and means for reaching them. The need for information about alternate shelters becomes a requirement against the not unlikely contingency of filled or otherwise inaccessible shelters.

Shelter-taking plans of other family members. This becomes an information requirement because of the possibility that people may delay entering a public shelter until they had information about separated family members.

Information for In-shelter Survival

Towards the goal of maximizing the survival potential of the public shelter system, the following items were designated as information requirements.

Identification of shelter boundaries. In the absence of adequate information about the boundaries of the shelter, the public is likely to

use inappropriate criteria in seeking a safe location with the highest likelihood that crowds will gravitate to below ground levels of the building. The knowledge of contiguous shelter areas (up to 500 feet lateral walking distance) is also vital, because supplies for several such areas may be stored in a single location.

The nature and location of OCD supplies. Because there are few standardized rules about the placement of OCD supplies in a shelter, and little understanding by the public of what has been supplied under the Federal Marking and Stocking Program, it is essential that information about the nature and location of OCD supplies be accessible.

The dilemmas created by the "marked but non-stocked" shelter and the stocked facility with empty water drums were discussed as examples of situations in which potential life-saving information may be systematically denied the public.

Information pertaining to augmented supplies. Many buildings in which shelters are located contain useful supplies and equipment that can be brought into the shelter if people are aware of the need. Also, supplies brought in by shelterees can add to the survival capability, if procedures are established prior to shelter-taking.

Information pertaining to basic shelter needs. Three substantive areas were singled out as especially critical for in-shelter survival.

1. Radiological protection: The nature of the threat, basic types of protection, effects of exposure, treatment of radiation sickness, decontamination of persons and supplies using wartime criteria and techniques, permissible levels for various activities, and rudimentary understanding of RADEF monitoring instruments and operations.

2. Temperature and atmosphere control: Nature of the threat, means for detecting temperature extremes and atmosphere imbalances, and feasible means for temperature and atmosphere control in the "average" public shelter.

3. Water needs: Amount and location of water resources, making water potable, and human water requirements.

The Public Information Process

The generation of public information content is only one step in the process of informing a target population. The complete public information process can be summarized as follows.

1. Public information content must be generated.
2. Content must be organized and programmed.
3. Content must be transmitted to the public.
4. Content must be received by target audiences.
5. Content must be accepted by target audience.
6. Public must be provided with outlets to act upon public information.

Associated with each step in the process are certain socio-psychological barriers that must be hurdled if the information campaign is to achieve its objectives.

The Audience for Shelter Information

Four types of audiences were identified: (1) the organized CD core, (2) the CD volunteer, (3) the predisposed or "captive group", and (4) the public at large.

It was suggested that the public has less tolerance for incomplete or inconsistent CD plans than does the professional or volunteer civil defender. The former is unlikely to respond in peacetime to a partial or inconsistent CD community shelter plan. A major recommendation of this report is that the general public should not be formally brought into the shelter program

at the local community level until the major gaps in the shelter plan of that community have been closed or narrowed. In lieu of a formal public information program, the following activities were recommended:

1. Shelter information should be available for all who request it, on the same basis as it is currently--through training courses, information kits, and so forth.

2. A plan for making available, up-to-date shelter information requirements during an increased readiness period should be developed, reviewed, and updated as necessary.

3. The public should be informed that:

   a. Levels of government are actively working on plans for protection of the community.

   b. Because planning is difficult, it will be awhile before plans are finalized enough to involve the public at large. (Maybe a time estimate can be given).

   c. In the event of an emergency prior to the completion of community shelter planning, shelter guidance will be provided citizens at the time of increased readiness.

   d. Citizens who desire more information at the present time can receive it through appropriate information and training channels.

The Timing of Shelter Information Campaigns

Transmitting shelter information during the increased readiness period has many advantages, associated with the higher saliency of the subject matter. However, there are disadvantages that must be overcome, namely materials must be prepared ahead of time, logistics problems must be solved, and in general, the margin for error diminishes.

The Media for Shelter Information

The pros and cons of the major electronic and print mass media in their role as transmitters of shelter information were described.

Implications for Emergency Information Steps of the CSP

The implications of these recommendations fc. the Emergency Information Readiness activities that are part of the Community Shelter Plan were discussed.

The major modification recommended in the Emergency Information Program of the CSP is the elimination of the "individual information package" as a requirement levied upon the local community. At best the "individual information package" will be an elaborate and expensive reminder to the public that CD exists; at worst it can jeopardize the success of local shelter planning efforts.

Among the considerations that led to this recommendation are:

1. The geographical mobility of the American population.
2. The changing community landscape, especially in urban areas.
3. Changing strategic ground rules and postures.
4. The difficulty in motivating the public to accept a limited CSP program in peacetime.
5. The difficulty in reaching the public with information that it genuinely accepts and retains.
6. The organizational problems at the local level in keeping the information program going over an extended period of time.

What is required in a peacetime information program is (1) a mechanism whereby interested individuals and groups can be informed about shelter details and (2) a plan and procedures for informing the public during the increased readiness phase, when information is genuinely needed and eagerly sought.

SHELTER SYSTEM KNOWLEDGE OF A SAMPLE OF VOLUNTEERS

A shelter information questionnaire was administered to 278 persons who volunteered as subjects for AIR shelter laboratory studies. Some of the findings are presented below.

Sixteen per cent of the sample reported that they had taken steps to improve their survival chances, mainly storing food and water at home.

Forty-one per cent remembered exposure to civil defense communications, with TV broadcasts and pamphlets the most frequently mentioned media.

Almost half the respondents said they knew about the outdoor warning signals. However, the number who could provide accurate details about the warning system was much smaller.

Forty-seven per cent stated that there was a public shelter (mainly described as a school) within ten minutes walking distance from their homes. Twenty-two per cent said there was no shelter, and the remainder didn't know.

Eighty-three per cent said they knew how to identify a public shelter, largely by the sign or placard posted outside.

As far as shelter supplies are concerned, 46 per cent said that public shelters were stocked, 1 per cent said they weren't and 53 per cent didn't know. Of the first group, 88 per cent mentioned food, 79 per cent water, 50 per cent medical supplies, 16 per cent sanitation supplies, and 9 per cent radiological monitoring equipment. Twenty-two per cent mentioned bedding of some kind, 10 per cent mentioned clothing, 9 per cent radio and flashlights as being stocked in shelter. Of the 129 people who said shelters were stocked, only 2 per cent were able to list all five categories of supplies.

Fifty-four per cent felt that healthy adults could survive up to five days without water, 29 per cent said from six to twelve days, 12 per cent

estimated longer periods. The survival period without food was estimated as up to five days by 14 per cent, six to twelve days by 28 per cent, thirteen to twenty-five days by 31 per cent, and longer periods by 23 per cent.

Eighty-one per cent felt they could give a definition of the term "fallout", and 74 per cent said they knew why it was harmful. Fifty-five per cent of the respondents felt that clothing could be decontaminated; 2 per cent said "no" and 41 per cent didn't know. The most popular technique mentioned involved removing the clothing, with wide implication that the clothing would have to be destroyed. Far fewer (13 per cent) felt that food or water could be decontaminated; 27 per cent said it could not, and 59 per cent couldn't answer the question. Almost half the techniques suggested by the 13 per cent involved cooking, boiling, sterilizing, or distilling.

CONTENT ANALYSIS OF OCD PUBLIC INFORMATION DOCUMENTS

Twenty-five pamphlets and booklets that could be requested by the general public at the time the study was initiated, were analyzed to discover the emphases that was being placed in shelter information materials. After the study was initiated, some of the documents were withdrawn from general distribution. Table I on the following page summarizes the shelter-related content of the eight documents that are still offered to the public by OCD, as well as the 17 other documents issued by other agencies, or withdrawn from circulation by OCD.

Table I

Summary of Shelter Content in 25 Public Information Documents

Content Category	Current OCD Documents		Other Civil Defense Documents		Total	
	Number of Content Units	Per Cent	Number of Content Units	Per Cent	Number of Content Units	Per Cent
Radiological	444	29.2	839	40.6	1283	35.7
Food and Water	330	21.7	223	10.8	553	15.4
Other Weapons Effects	169	11.1	351	17.0	520	14.5
General Shelter	146	9.6	238	11.5	384	10.7
Medical Care	103	6.8	21	1.0	124	3.4
Communication	64	4.2	97	4.7	161	4.5
Training	21	1.4	98	4.7	119	3.3
Supply Management	77	5.0	39	1.9	116	3.2
Shelter Organization & Management	24	1.6	30	1.4	54	1.5
Sanitation	95	6.2	11	.5	106	3.0
Temperature & Atmosphere Control	17	1.1	23	1.1	40	1.1
Psychological and Social Factors	11	.7	17	.8	28	.8
Power and Illumination	5	.3	10	.5	15	.4
Sleeping	0	.0	10	.5	10	.3
Other	17	1.1	62	3.0	79	2.2
	1523	100.0	2069	100.0	3592	100.0

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ABSTRACT

This study of public information requirements for effective use of the shelter system is comprised of three separate but related parts. The first is an analysis of the types of items that make up the minimum required public information content for effective shelter system use. Public information in regard to threat warning, shelter-taking, and in-shelter survival is discussed. The audience for shelter information, the timing of shelter information campaigns, and the media for public information are also discussed. The second part of the report consists of a description of a shelter information study, in which 278 volunteers for AIR shelter research projects were interrogated on the nature and extent of their information and misinformation about shelter-related subject matter. Questions were asked about knowledge of warning signals, emergency communications, shelters and shelter supplies, fallout and its effects. The last section of the report contains the results of a content analysis performed on 25 civil defense pamphlets on the fallout shelter issue available to the public between 1959 and the present time. The purpose of the analysis was to discover the emphases and trends in the shelter-related guidance that the Government has made available to the public.

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SCOPE AND NATURE OF THE REPORT

Introduction

The study of public knowledge, opinions and attitudes represents one of the most frequent subjects of behavioral research in civil defense. Although a degree of overlapping between this report and previously published work on the subject of public information is inevitable, the research described here has focused on certain substantive issues that have not received prime attention in prior studies of civil defense and the public. Firstly, this report is limited to the topic of the public shelter system rather than civil defense in general. Secondly, it deals exclusively with the subject of public information. Where reference is made to public opinion and attitudes to the shelter system, it is in the direct context of attitude formation or change as a result of public information or the lack of it. The third difference between this and other related analyses is that the central focus of this study is on public information requirements. The information requirements have been arrived at through analyses of the fallout shelter system. Although we also report on what various publics know about shelters and what the Federal Government apparently wants the public to know about shelters, the emphasis nonetheless is on requirements--what the public must know in order that the public shelter system be utilized to its full capability.

This report is divided into three main sections, each of which is introduced below.

Minimum Information Requirements for Effective Use of Public Shelters

The first section of this document identifies and discusses the items of information that must be available somewhere in the public shelter system

in order for it to function effectively. The items are categorized according to the actions the public must undertake to reach the protection of a public shelter and to survive while in-shelter. An attempt was made to consider only general information requirements, that is, bits of knowledge that would enhance survival chances in a wide range of shelter types and environments.

In addition to the items per se, other factors in the public information process are briefly discussed. Two additional topics are singled out for more detailed consideration. The first is the target audiences for public information, and the second is the timing of public information programs.

The presentation and analysis of public information requirements in this report has been constructed upon twin foundations. First is the corpus of research work associated with AIR analyses of the fallout shelter system. Equally important are the numerous studies of civil defense publics cited in the reference section, which contributed both empirical data and theoretical insights to the project herein reported.

Shelter System Knowledge Among Volunteers for Shelter Studies

In the second major portion of this report, the results of a questionnaire study are described. The respondents were approximately 275 persons who volunteered to participate as subjects in shelter research conducted by the American Institutes for Research in the summer of 1965

The purpose of the questionnaire is to reveal the extent of knowledge of essential shelter system information items in a selective sample of volunteers. The sample is, of course, not representative of the general population. To the extent that about 50% of the respondents were students (college and upper grades of high school), and to the extent that the entire sample volunteered for a civil defense project, we may assume this to be a better informed than average group. Those items of shelter information

about which this group is uninformed, would tend to be even less known among the general population.

The questionnaire was developed by the AIR staff after a review of the instruments used in other civil defense surveys and after the initial specification of categories of shelter information requirements. In-house review and pre-testing led to numerous modifications in the form prior to its use on the volunteer sample.

Content Analysis of OCD Public Information Documents

The objective of the third section of this report was to determine the emphases in the fallout shelter subject matter that the Office of Civil Defense had prepared for distribution to various segments of the general public.

Although a good deal of information about what the public knows has been accumulated over the past few years, there appears to be relatively little work of a systematic nature on the subject of what the Government would like or expects the public to know, as indicated by the types of shelter information that is made available for the population at large.

Twenty-five OCD documents made available to the public between 1959 and 1964 were analyzed in this study. The selection requirements were that the documents be non-technical, non-fictional pamphlets, or brochures with a reported circulation of over 50,000 copies.

The major subject dimensions of the content analysis scheme are:

1. Public shelter versus other (private, expedient, none).
2. Pre-shelter versus in-shelter.
3. Action versus information.
4. Long-range versus short-range action orientation.

The content analysis scheme originally contained over 200 information item categories.[1] The content items of the public information pamphlets were analyzed not only according to their frequency of occurrence but also to the emphasis they received in each document.

[1]Because a number of the categories had no or very few entries, they were combined for final analysis and reporting.

PART I

MINIMUM INFORMATION REQUIREMENTS FOR EFFECTIVE USE OF PUBLIC SHELTERS

THE INFORMATION REQUIREMENTS

In this section of the report, we are concerned with identifying items of information. These represent in our view, the minimum information base upon which a public shelter system can effectively operate. The term "information requirement" as it is used throughout this report, refers to a fact about the shelter system which, if not known by the appropriate people at the right time, can easily lead to an increase in the mortality toll among the population utilizing a public shelter.

For the purposes of this analysis, it is useful to divide the universe of required information into general survival facts and contingent survival facts. The latter cannot be obtained without knowledge of a particular shelter, the characteristics of its occupants, the internal and external environment, and so on. For example, rescue and repair techniques fall in the category of minimum information requirements only under the contingency of shelter damage. The emphasis in this report is on general survival facts, information items or themes that enter into the survival calculus for a wide variety of shelters and shelter conditions.

Threat Warning Information

Because the technical and social , sychological problems of alerting the public have been analyzed in a number of OCD-sponsored research reports,[2]

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[2]Bolt, Beranek, & Newman, Inc. Investigation of the design & operation of sound systems for civil defense. Cambridge, Mass.: Author, November 1963.

Mack, R.W., & Baker, G.W. The occasion instant: The structure of social responses to unanticipated air raid warning. Washington: National Academy of Sciences-National Research Council, 1961.

Oyer, H.J., & Hardick, E.J. Response of population to optimum warning signal. East Lansing, Mich.: Michigan State University, September 1963.

System Development Corporation. Final report to the Office of Civil Defense: Civil defense warning system research support. Santa Monica: Author, April 1964.

they will not be scrutinized here. Warning requirements are discussed here only in the context of prerequisites to shelter utilization.

Information That a Threat Exists

Movement to shelter is usually thought of as being initiated by public notification of the existence of a threat, traditionally by means of the outdoor siren and radio. The threat warning message must meet the requirements of audibility and authenticity. The former refers to the fact that the message must be heard by enough people at the appropriate time to ensure that shelter-taking can occur efficiently. Authenticity in this context refers to the requirement that the message be interpreted as signaling a real threat as opposed to an irrelevant event (e.g., factory change of shift) an accident, or a rehearsal. Related to this is the requirement that the warning message convey information about the nature of the threat, that is, possible nuclear attack, as opposed to other types of emergencies (e.g., fire) whose occurrence is often signaled by a similar message.

Estimated Time Till Threat Materializes

To achieve public response that will optimize the effectiveness of the shelter system, threat information should contain a temporal clue--how much time is available for preparation for and movement to shelter? This is especially critical at those times when large parts of the population are not bunched in comparatively fast response "captive groups" as at work or school. Currently the time dimension is worked into the siren scheme in the form of steady (signifying attention or alert) and warbling (signifying attack warning) tones. It is also possible that Emergency Broadcast System stations would provide estimates of time till attack.

Information That Legitimizes Threat Warning

This could have been subsumed under the above category but was given separate status to indicate its crucial role in the public information process.

As Mack & Baker have written in their summary of response-to-warning studies:

> "Probably the most conclusive general finding from the research experiences in the three cities is that hearing the warning siren alone is totally inadequate to stimulate people to immediate protective action. What people do, in fact, upon hearing the siren, is to seek additional information either to validate or to refute their own initial interpretation of the meaning of the signal."[3]

What makes this a stumbling block in the process of informing the public is that large portions of the affected population seem to turn to validation sources that are "unofficial, informal, and in terms of civil defense criteria, incorrect."[4]

This widely observed tendency for people to introduce a validation step between receipt of warning and response to warning, leads one to identify a legitimation message as an information requirement, separate from the warning signal. A warning signal that carries its own immediate legitimation, such as a siren tone that is sounded only for the "real thing," will in our estimation not accomplish its purpose of triggering immediate survival responses on the part of the public. People will still tend to seek independent validation of their interpretation.

The key is to get the public to seek an authentic CD validation voice message, which ideally would have the following characteristics.

1. Clear, unambiguous: a carefully worded message that would be difficult to misinterpret.
2. Authoritative: spoken by or in the name of an individual (or agency) in whom (which) the populace places trust.

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[3] Mack, R.W., & Baker, G.W., op. cit., p. 39.

[4] Ibid, p. 39.

3. Easily received: the public should have to take a minimal number of active steps to receive the message.

4. Rapidly and simultaneously disseminated to the intended audiences. In the current system, EBS stations would appear to have major responsibility for providing validation of the warning signal.

Information Pertaining to Shelter-Taking

Identification of Public Fallout Shelters as a Survival Solution

In analyses of community shelter utilization, little attention is directed to the fact that shelter-taking is a volitional act, requiring a decision on the part of an individual or group. The act is not an automatic response to a signal. Much attention is given to the problems of overcrowding, of population movement to shelter, and similar issues that imply an overwhelming shelter-taking response by the public. However, there is reason to suggest that a segment of the general public--how large a segment is difficult to determine--will decide against occupying a public fallout shelter under emergency conditions due to (a) ignorance about the existence or location of shelter (b) private or community survival plans that utilize alternatives to shelter-taking, (c) rationally or irrationally based concerns about the efficacy of a public shelter.

A public shelter information program will not change the beliefs of those who are committed to another course of action or those who have strong negative feelings about shelters. However, if the "don't knows" could be reached during peacetime with basic information about the existence of shelters, the likelihood is increased that under emergency conditions they will at least be able to perceive the public shelter as a realistic alternative. Therefore, for that portion of the populace that lacks knowledge of the shelter system, the identification of the shelter as a survival solution constitutes an information requirement.

Information about Location of Public Shelters

It has become increasingly evident to community shelter planners that locating, marking, and stocking an adequate number of shelter spaces for the community are but the first few of a series of steps in developing an adequate community shelter program. Another high priority planning task is to match the population to the available space through some form of realistic assignment or allocation scheme. Public information about shelter assignments is therefore regarded as required knowledge for the effective operation of the shelter system. The assignment information should have the characteristics described below.

Information should be as specific as the community plan permits. If an individual or group has been assigned to a specific shelter facility, that facility should be described in a manner that would reduce the possibility of error or delay in shelter-taking. The street number by itself is probably not enough information, especially in areas of great shelter density. The name of the building, its function, its description, nearby landmarks--some of these items should be conveyed in shelter assignment information.

If an individual or group has been assigned to a geographical area, rather than a specific shelter, a minimal requirement would be the specific location of shelters within the designated area.

Shelter information should cover the major foci of community life. Although a shelter utilization plan cannot accommodate the myriad patterns of movement of citizens within the community and between communities, it must take into account the major ecological patternings of the community, minimally--the work, home and school setting, during the week as well as the major night and holiday (weekend) patternings. In the course of our civil defense studies, we have encountered a number of "public" shelter facilities that would be closed to the public at certain times or that would require a lengthy period of time to open following warning notification. The impact of seasonal activities also requires attention in the assignment

plan, as in the case of a resort community, or for that matter any community during summer when the schools are closed.

Shelter assignment information should be up to date. Because of new construction, additional shelters being marked, people moving, and so forth, once a complete assignment/movement plan has been made public, a requirement is levied on those responsible for disseminating information to the public on shelter assignment or movement to keep such information up to date.

Means for Reaching Assigned Shelter

Without public information on the subject of how to reach the shelter, the goal of survival in community shelters might not be attained. Not that a majority will be unaware of how to reach the shelter. **The issue is** to get the population to use the means appropriate to emergency conditions so that shelter-taking, as well as other emergency community activities can take place with minimal impediments. Therefore, optimum modes of transportation and routes to shelter are also included in the package of minimum essential information items for effective shelter utilization. Day-night and seasonal variations in shelter accessibility should also be considered if deemed large enough to affect significantly the movement to the shelter.

Alternate Shelters and Means for Reaching Them

Every available document dealing systematically with shelter management procedures focuses upon "closing the shelter doors" as a key issue in shelter management. Everything points to a prediction that some part of the population will arrive at a shelter after its capacity has been reached, unless an extended period of time is available for movement to shelter. Unless we think of reserved spaces in public shelters, which aside from its ethical implications, is impractical, **to say the least, the need for information about alternate shelters becomes a requirement against the not unlikely contingency of filled-to-the-brim, or otherwise inaccessible shelters.**

Shelter-taking Plans of Other Family Members

At first glance, this may appear to be unrelated to the subject of information needed for shelter-taking. However, concern over safety of family members is likely to be a major impediment to individual shelter-taking, and an impetus to initiating inappropriate behavior (tying up phone system, driving home from center of city to its outskirts, etc.).

Disaster studies summarized in Barton[5] indicate the widespread existence of conflict between family roles and occupational roles in a disaster situation, with a resolution of such conflict largely in the direction of the familial role.

The implications for this research is the likelihood that large numbers of people might delay making the committment to enter a public shelter until they had information about the location of separated members of their immediate family, or they exhaust avenues for obtaining such information. Knowledge of pre-arranged family plans is not a substitute for knowledge of actual status of separated family members, but it nonetheless may have an effect on the shelter-taking process, as well as on behavior while in the shelter.

Information for In-shelter Survival

Identification of Shelter Boundaries

Most of the current public information efforts concerning shelter identification deal with the problem of identifying the building in which the shelter is to be found. Very few people are aware of the internal identification problem--that of locating the shelter spaces within the facility. Although there are invariable signs in the building offering

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[5] Barton, A.H. Social organization under stress: A sociological review of of disaster studies. Washington: National Academy of Sciences-National Research Council, 1963.

shelter directions, in all too many cases these are confusing or non-informative especially to someone who has not been given a prior orientation. The population, streaming into a large office building may find it quite difficult to locate itself in protected areas, on the basis of the signs posted in the "average" shelter. Knowledge of actual shelter boundaries is an information requirement because in its absence the likelihood is high that people will resort to inappropriate criteria in seeking protection. For example, the prevailing concept of a fallout shelter held by the population at large is that of an underground site. In the absence of contrary information, the natural tendency will be for incoming shelterees to gravitate to the "basement," thus creating potential management crises through overcrowding, difficulties in shelteree movement, communications problems and the like. The chance that people will end up in locations that offer less than minimum protection against radiation is also increased.

The knowledge of contiguous shelter areas is a related information requirement. For planning purposes, the Federal Civil Defense Guide defines adjoining shelter areas (which implies feasibility of common administration) as areas that are separated by a lateral walking distance of less than 500 feet, or a vertical distance of less than 4 stories.

Because shelter supplies for contiguous shelter areas may often be stored in a single central location, it is essential to know something about the ecology of shelter spaces within a single shelter for effective operation of the system.

Under the heading of "identification of shelter boundaries," one can discuss another issue that constitutes a public information dilemma. This has to do with the concept of Protection Factor. As is well known to shelter planners but largely unknown to the general public, a single shelter area can contain spaces that vary dramatically in the protection they afford against external radiation. The dilemma is of two varieties. The first is where the protection factor varies between 40 PF and some higher

figure; the other occurs where some parts of the shelter have less than 40 PF, in a shelter that just meets minimum Federal PF requirements for marking and stocking. During the course of the shelter stay information about the variation in protective capability will become known in the shelter system through radiological monitoring. It is hard to think of such knowledge being kept as a management "secret" in a crowded shelter. If knowledge about PF variability is known prior to occupancy, management procedures can be worked out in advance to deal with the problem should the need arise (e.g., through rotation of shelterees). However, should it become widely known prior to occupancy that a certain area of a marked shelter offers significantly lower protection than others, or that one shelter provides greater protection than the one across the street, obvious problems for public acceptance of the shelter program can be created. This type of information dilemma has even sharper horns when applied to the subject of shelter supplies, which follows.

The Nature and Location of OCD Supplies

There are relatively few standardized rules about the placement of OCD supplies in a stocked fallout shelter. In general, supplies are stored where it is most economically feasible to do so within the building. Storage space may or may not correspond to shelter space. This fact plus the general unawareness on the part of the public of the types of supplies stocked in shelters may make it difficult for shelterees to stumble upon the supplies and perform the appropriate logistic maneuvers in getting the supplies to the shelter spaces, in the absence of specific information about the number, types, and location of the OCD stocks. Shortages of stocked supplies can clearly affect the survival capability of the shelter. Information pertaining to the number, type, and location of such supplies fit the definition of an information requirement.

A dilemma has long been associated with the relationship between marking and stocking of public shelters. If all the approximately 80 million

spaces in 92,000 facilities that had been marked by the end of January 1966 had to be occupied in a nuclear emergency, about 23,000 (or 25%) of them, representing 17 million spaces would have no supplies stocked at all. Over 38 million spaces would be stocked for a 14 day shelter stay, and the remaining spaces have stocks for less than a two week occupancy period. There is no immediate way for the shelter-taking public to know whether they have taken refuge in a "plush" shelter with an elaborate supply capability or in one with OCD stocks, or in one without any emergency supplies at all. From the standpoint of public information requirements for effective shelter use, a situation is created in which potential life-saving information is kept from the public.

This is not to deny the usefulness of the marked-unstocked shelter, for a relatively short stay of several days. In such cases, if occupants are aware at the outset, or even prior to shelter-taking that their facility lacks supplies, they can at least partially stock the shelter with supplies from the outside or from parts of the building in which the shelter is located. If a longer stay of a week or two is envisaged, there appears little or no justification for permitting unstocked shelters to be occupied as if they were fully stocked with essential supplies. In the case of both the short and the long shelter stay, it is advantageous from a life-saving standpoint, that the supply status of the shelter be known to its occupants.

A similar situation involves water drums in "stocked" shelters. In all too many cases, the water drums are stored without being filled and without any visible signs that they are empty. Once again, speaking from the point of view of knowledge requirements, this gap in information has life and death consequences. This point will be brought up again for further discussion when the subject of the public information audience is treated.

Information Pertaining to the Nature and Location of Augmented Supplies

Almost every structure which houses a public fallout shelter contains equipment and supplies that can materially increase the life-saving potential of that shelter. It is therefore a requirement for effective shelter use that knowledge of the nature and location of augmented supplies be available within the shelter system.

Essential supplies that are currently not being stocked by OCD but which might be found in the "average" office building include: lighting devices, communication devices, fire-fighting devices, and tools. Vital supplies which, under a wide variety of environmental conditions, may be required to augment OCD stocks include water and medical supplies.

Unanticipated shortages or extensions in the predicted shelter stay levy an additional information requirement--knowledge of sources of supplies in the immediate vicinity of the shelter building, as well as existing plans for the use of such sources for supply replenishment.

A relatively simple plan for augmenting vital shelter supplies that puts the burden squarely on the general public is to have the shelter population take along with it supply items that have been prepared beforehand. A family emergency kit consisting of a transistor radio, flashlight, batteries, and some hand tools, would seem to be a useful item to have around the house in peacetime, given the technological failures and acts of nature that large portions of our nation have recently been subjected to.

If a number of such kits were brought in by occupants of public fallout shelters certain serious supply problems might be eased.

Information Pertaining to Basic Shelter Needs

1. Radiological Protection

In order that the shelter accomplish its mission of protection against the effects of radioactive fallout, the following types of areas of information needs to be known within the shelter.

a. The nature of the threat: why fallout is harmful.

b. Basic types of protection against fallout: concept of barrier and geometric shielding, decay rate and time.

c. Effects of exposure to radiation: symptoms of radiation sickness.

d. Treatment of radiation sickness: symptomatic treatment and awareness of non-contagious nature.

e. Decontamination of persons and supplies: wartime criteria and techniques.

f. Permissible radiation levels for various activities.

g. Basic understanding of RADEF monitoring instruments and rudimentary knowledge of monitoring operations.

2. Temperature and Atmosphere Control

Temperature extremes and atmosphere imbalances can take a large toll in lives in a comparatively short period of time. Maintaining livable atmospheric conditions in shelter will, at present, confront shelter management with perhaps their sternest survival challenge. Among the types of information that needs to be known are:

a. Nature of the threat: basic information on effects of temperature extremes and atmosphere imbalances (CO, high CO_2).

b. Means for detecting dangerous temperature extremes and atmosphere imbalances.

c. Feasible means for temperature and atmosphere control in the "average" public shelter.

3. The Water Need

Of all the supplies stocked in the average shelter, water is clearly the one item whose absence will have the most deleterious effects on shelter survival. The likelihood of solving the water problem will be greatly enhanced if the following information were available in the shelter:

a. Amount and location of water resources: including stocked water, building water system, food stuffs, etc.

b. Basic information about making water potable: purification, decontamination.

c. Human water requirements.

By signaling out the above three survival factors, it has not been our intention to ignore other problem areas that could put shelter survival efforts in jeopardy. However, the three that have been cited most closely meet the criteria of being critical, common, and correctable, within limits.

Other survival factors that meet the criteria almost as closely are fire prevention and control and medical care. For the former, the key information items are:

1. Location of fire-fighting equipment.

2. Basic knowledge about fire-fighting methods.

Although medical problems can certainly be expected to be common and frequently critical, there are stringent limits to what the non-medically qualified person can do to correct the situation especially with the medical capability that most public shelters will be able to muster. In a sense then, the public information items associated with medical care are the first aid life-saving techniques that can be employed in the shelter.

THE PUBLIC INFORMATION PROCESS

The process of informing a target population only begins with the generation of the specific content that is to be transmitted. There are a number of steps in the complex process of reaching and influencing an audience. These may be summarized in the following manner:

1. Public information content must be generated.
2. Content must be organized and programmed.
3. Content must be transmitted to the target population.
4. Content must be received by the target population.
5. Content must be accepted by population.
6. Population must act upon information content.

1. Generation of Public Information Content

The initial step in the process has been the subject of the preceding section of the report.

2. Organization and Programming of Public Information Content

Step 2 considers the need to prepare a public information "package" that can be disseminated to the intended audiences in a planned manner at the specified time(s). In this stage one may locate some of the major strategic decisions of an information campaign. One is the specific definition of the target population. It is not uncommon for public information campaigns to be carried with only a vague general notion of who is supposed to be informed and/or moved to action. As shall be shown at a later point, the selection of the audience has a great bearing on the content of the shelter information campaign and the manner in which it is carried forth. Another vital issue is the timing of the campaign. In connection with the shelter question, this focuses on peacetime programming versus public

information during the increased readiness phase, an issue which will also be discussed later in this report.

3. Transmission of Public Information Content

The third step deals with the mechanisms and procedures for communicating to the public. The selection of the communication medium (or media) could actually have been discussed under the previous step. One would certainly hope that the media would be selected to optimize the communications objectives for the intended audiences. However, practical considerations unrelated to the manifest objectives of the campaign often determine the choice of media, thereby weakening its effectiveness. A common example is the scheduling of public service messages (including CD messages) on television at times when the audience is probably at its smallest. This is not to say that proportionately more people would believe the "message" if it were presented in prime viewing time. The point to be made here is that low cost and ease of availability often dictate the selection of a communication vehicle and thereby make the already difficult task of public information almost impossible.

Should shelter information be transmitted via the mass media or through interpersonal contact or combinations of the two? If mass media, which one(s): TV, movies, radio, or print? If by personal contact, by whom: prestigious personages, or opinion leaders, friends or relatives?

4. Reception of Public Information Content

The fourth step, "reception of information," highlights the fact that transmission of a message by a communicator does not guarantee reception of that message by the target population. Some of the factors that intervene between transmission and reception are due to technical limitations of whatever communication system is employed. Of greater relevance to this analysis are socio-psychological barriers that keep a message from being accepted within the cognitive framework of the persons who comprise the audience. "One looks but does not see, one listens but does not hear" is an oversimplified description of the phenomenon that occurs so often with non-

salient information of which most information campaigns are composed. An example of this phenomenon that, in the author's opinion has generalizability to the civil defense case, is given in Cartwright's well known analysis of World War II War Bond campaigns by the Government.[7] As part of a large information campaign, the Government distributed a pamphlet to every household in a number of cities. A study was conducted in Baltimore to assess the effectiveness of the campaign. Eighty-three per cent of those interviewed did not remember seeing the pamphlet--even after having been shown a copy. Seventeen per cent recalled having received it, of whom 11% read it. In general, it was interpreted by recipients as Sunday newspaper supplements, advertising, or a children's publication.

More recent and more directly concerned with civil defense is Berlo's study[8] of the impact of the Fallout Protection Booklet in which it was estimated that fewer than one person in eight in the total urban population noticed the booklet and fewer than 1 in 20 read it carefully.

5. Acceptance of Public Information Content

Acceptance of public information points to the requirement that a message must be interpreted as being worthy of response. It must be "hooked up" with the motivational structure of the members of the target audience. This hurdle is one that most public information campaigns fail to clear successfully. In an overwhelming majority of cases, the segments of an intended audience that receive and accept a public information message are already "believers" or at least attitudinally predisposed to accept the message. To cite but a few examples: Berlo[9] found that the readers

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[7]Cartwright, D. "Some principles of mass persuasion," Human Relations. Volume 2, pp. 253-267, 1957.

[8]Berlo, D.K. The fallout protection booklet: (IV) Characteristics of readers and an analysis of the impact of the booklet. East Lansing, Mich.: Michigan State University, October, 1963.

[9]Ibid

of the Fallout Shelter Booklet were already most informed and most favorably disposed towards civil defense.

The data from the Columbia study[10] could also, we believe, be interpreted to support this hypothesis. The Columbia researchers uncovered a **curvilinear relationship between exposure to fallout shelter media and** opinions about fallout shelters. For the lowest socio-economic status the most exposed were more likely to accept the program than the less exposed. This is in keeping with our hypothesis. For the high socio-economic status group, the relationship between exposure and favorable attitude is an inverse one, except in the case of exposure to pamphlets. That is to say, for high SES respondents, greater exposure to books, movies, articles on shelters is related to less favorable attitudes towards shelters, whereas greater exposure to pamphlets appears to be related to more favorable attitudes. As we see it, that is a significant finding because we would argue, there is a great deal of difference between gathering CD information through books, movies, magazine articles on one hand and pamphlets on the other. It is our contention that in the former case what respondents actively seek out is the cultural experience (of reading, movie going, etc.) and not the civil defense content, so that exposure to CD information through films (e.g., On the Beach) would be highly correlated with extent of general movie going, and similarly CD reading with reading in general. But pamphlets could be considered a different cultural phenomenon. A pamphlet usually has a specific theme and an objective. One does not think of a general pamphlet-reading public, as one does of a movie-going public. The pamphlet reader, we would argue, had made some special effort to get his material--by requesting it from OCD, or by rescuing it from the pile of "junk mail" he receives, or whatever. Pamphlets appear to us to be much more a part of the normal public

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[10] Levine, G.N. Perspectives and opinions on the fallout-shelter issue. Volume III. New York: Bureau of Applied Social Research, Columbia University, March 1964.

information process than do movies, books. Therefore, the Columbia findings do not negate the hypothesis that attitudinally predisposed persons selectively expose themselves to civil defense materials.

As mentioned earlier, the direction of these findings is characteristic of a preponderance of information campaigns, including elections, and is not unique to the acceptance of civil defense information. However, research on this subject has largely dealt with the non-emergency transmission and acceptance of public information. The patterns of audience response to information in a "high-saliency" environment has not as yet been systematically examined.

6. Action Upon Public Information Content

Action in a certain direction by the target population is the objective of almost all public information campaigns. There are two common flaws in such campaigns that make it even more difficult for them to achieve their goals. The first one deals with the vague manner in which the desired actions are described to the intended audience.

If one wants a population to do something at a certain time, all the particulars about the desired action must be provided in the information package or must in some other way be readily obtainable. If the objective is to have the target audience follow broadly defined behavioral guidelines for unspecified periods of time, a mass media campaign will serve largely as a reminder for the "faithful." It is not the vehicle for awakening interest and/or changing opinions of the non-committed or non-predisposed members of the audience.

The second flaw concerns the communicators' response to the public. All too often, and we believe this has been historically true of civil defense campaigns, the communicating agency does not establish the appropriate social mechanisms to deal with the public's response, so that when the activated portion of the target group responds, it is for one reason or another left unsatisfied. The result is that next time around, this potential action

cadre finds it easier to resist the call for participation from the public. Wiebe describes a "classic" version of this pattern that involved a civil defense campaign.[11] Sometime ago a weekly series of civil defense TV programs was broadcast over station WJZ-TV in New York City. The purpose of the programs was to persuade citizens of New York City to sign up at designated civil defense offices for training and continuing responsibility in the civil defense program. After a short period of time, the series was discontinued because the public over-responded and severely taxed the facilities of the network and the civil defense organization. Even the mailing of mimeographed acknowledgments in response to the public's inquiries was delayed many weeks. Teachers, facilities, training requirements, equipment, and administrative provisions all were inadequate for the job.

A much less dramatic, though undoubtedly more common situation, involves the trained shelter management instructor. A potential shelter management instructor is recruited, often at some cost, he is trained, let the assumption be that he is trained exceptionally well, and is "ready to go." Our observations of the shelter management scene are that all too frequently there is no established mechanism whereby this talent can be utilized. The burden for utilizing his skill is placed upon the instructor himself. Essentially the teacher has to build his own school. As one would expect, not very many people have the time, motivation or skill to do this. The result is that the SMI skills slowly atrophy and in short will recede to the point where the instructor will have to be retrained before he can be effectively employed.

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[11] Wiebe, G.D. "Merchandising commodities and citizenship on television," Public Opinion Quarterly. Volume 15, pp. 679-691, 1951.

THE AUDIENCE FOR SHELTER INFORMATION

For the purposes of this analysis, one may distinguish four types of audiences for shelter information. The first is the organized civil defense core--the occupants of formal organizational positions that involve the performance of civil defense roles. The second category is that of the volunteer--the civil defense activist who enrolls for CD courses and is available as a participant in CD activities. The third category is operationally defined as persons who are easier to reach with a CD message than the general population. In this category, one would place "captive audiences" as well as groups or social aggregates who are predisposed towards accepting the CD message without as yet being activists. School children are likely to fall into both of these sub-categories.[12] The last type is the large, undifferentiated general public.

It has been amply demonstrated in numerous CD opinion and attidude surveys that each of these groups is likely to respond differently to shelter information (at least in peacetime).[13] The paragraphs that follow are directed to the questions, "of what importance, if any, is the differential response," and "if the differences are meaningful, how should this be reflected in shelter information materials for the various 'publics'?"

As one goes from the category of the organized civil defender, to the volunteer, to the captive, one encounters a decreasing tolerance for incompleteness or inconsistency in civil defense activities. This is true

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[12] Greenberg, B.S. The socialization of young Americans toward fallout shelters and civil defense. East Lansing, Mich.: Michigan State University, January, 1966.

[13] Summary of many such studies is contained in Nehnevajsa, J. Civil defense and society. Pittsburgh: University of Pittsburgh, July 1964.

of any social system. The "insider" is always more aware of the liabilities and limitations of the system than is the person who views the system from a distance and can accept these limitations more easily. In working toward the goal of developing a community survival capability, professional civil defense workers or committed volunteers can accept the need to do the job in small, sometimes inconsistent steps, to ignore temporarily certain massive problems in order to concentrate on others, perhaps even to create problems for the time being in the course of solving others. It is our reading of the evidence that the general public has much less tolerance in this direction. It will not respond to a plan that it regards as patently incomplete, or inconsistent or uninterpretable. The major recommendation we derive from this is that the formal participation of the public at large in the shelter program should not be requested at the local community level until the major gaps in the community shelter plan have been closed.

In lieu of a local public information campaign that announces the beginning or the progress of a community shelter program, it is our recommendation that the following activities be conducted in regard to shelter information:

1. Shelter information should be available for all who seek it, on the same basis as it is currently--through training courses, pamphlets, information kits, and so forth.

2. A plan for making available in a rapid fashion accurate, up to date, shelter information during an increased readiness period should be developed. All the necessary training and orientation materials should be developed and reviewed regularly as the community shelter plan progresses towards completion.

3. The general theme in communicating to the general public on the shelter issue via the mass media (e.g., newspaper articles, radio, TV discussions) should be:

   a. That local government and other levels of government are actively working on plans for protection of the citizens of the community.

b. The planning process is a difficult and complex one, and it will be a while before the planners are ready to formally involve the public at large. (Maybe a time estimate can be given).

c. That in the event of an emergency prior to the completion of community shelter planning, shelter guidance will be provided citizens at the time of increased readiness.

d. That citizens who desire more information prior to the satisfactory completion of community shelter planning can receive it through normal information and training channels.

What is the basis for these recommendations? AIR research for the Office of Civil Defense has consistently emphasized the importance of information and training in regard to shelter management. Why then, the espousal of a position that appears to call for a denial of information? Although the answers to these questions are contained in the preceding pages, perhaps they can be restated with greater clarity. Our reasoning is tied up with the status of the current shelter program. As of January 1966, public fallout shelter spaces were stocked with vital supplies for 21% of the population, whereas they were marked for 44% of the population. For 17,000,000 spaces in 23,000 marked fallout shelters, there would be no supplies at all if a nuclear emergency were to occur today. Within the 69,300 facilities with some supplies in them, there is informal evidence, at least, that a large percentage of the stocked water drums are empty.

Without intending to criticize the shelter program, it is our belief that the public shelter as a "marketable product" has not been developed to the extent that it can be "sold" to the public during peacetime. Except for the 4-5% of American cities of 25,000 or greater population that have stocked shelters for most of their citizens, it would appear to us that municipal Governments are advocating a caveat emptor policy, in which the burden is upon the citizen to determine what the yellow and black placard on the building to which he has been assigned really means. It will be

difficult during peacetime to involve the general public in a fully functioning, well-coordinated civil defense program. Premature involvement of the public can make the ultimate goal that much more difficult to achieve. We see no logical or psychological reason why the non-committed person should be attracted to and become interested in participating in the current community shelter program at the present moment. Neither do we see why the civil defense conscious individual should forego whatever private survival plans he may have and participate in a community shelter plan until that plan is relatively complete and coordinated.

Not only do we see disadvantages to a premature public information program about the incomplete community shelter system, we also see advantages in public non-involvement during peacetime for the duration of time it takes to close the gaps in the community shelter plan in a particular community.

Civil defense professionals and committed volunteers can do a better job (that is, can be more flexible, more experimental) in developing a community shelter capability if given a period of time when they do not have to contend with public reaction to shelter assignments, to newspaper "discoveries" of unfilled water in marked shelters to which assignments have been made, and to other types of problems that are bound to emerge in the effort to match the citizenry to public shelters.

Our primary recommendation, therefore, is to defer the invitation for public involvement until the marked-stocked shelter space gap has been eliminated or narrowed into insignificance. The second recommendation is to identify the current status of every public shelter relative to its own ultimate capability. That is to say, we are not at this point recommending that 40 PF shelters be "color coded" to be distinguishable from 100 PF shelters. We are suggesting that the "marked-stocked-filled"[14] public shelter

[14] "Filled" pertains to water drums.

be distinguishable, through some temporary addition to the shelter placard, from the "marked-stocked-not filled" or "marked-not-stocked" shelter. Also that the "partially stocked" shelter be distinguished from the one that has supplies for its rated capacity. Who knows, an arrangement like this, signalling as it does the building owner's incomplete fulfillment of his obligations to the world at large, may create pressures to bring the shelter to its full capability.

So far we have been dealing with a situation in which one part of the shelter program has lagged behind another without any implication that the communities shelter resources have been exhausted. However, it is evident that a number of communities have a built-in permanent deficit of shelter spaces. Does our logic lead to the conclusion that such a community should never reveal its shelter plan to its citizens because it can never hope to find ample public shelter space to protect the entire population? Not at all. As long as the community plan provides a means whereby the "surplus" shelter population can be protected, either in under-50-person local shelters that are or can be stocked, or in expedient shelters, or through transportation to communities with surplus space. We don't believe that a local community will accept a shelter plan in peacetime that (1) provides protection for a certain portion of the population and leaves the rest to fend for itself or (2) drastically changes the nature of the likely nuclear attack and its consequences in order to "find" enough shelter space for the entire population.

During a time of increased readiness, shelter information becomes more salient to the general population and the situation described in the preceding pages is very likely to change, a point which will be developed in the next section of the report.

THE TIMING OF SHELTER INFORMATION CAMPAIGNS

Theoretically, there are great advantages to conducting a shelter information program in peacetime (operationally defined as a time period with little threat of an immediate nuclear attack). Many of the advantages are associated with time--time to plan and prepare a program; time to respond to changes in the environment that modify information requirements; time to experiment with media and program content; time to receive feedback and evaluate the program.

In practice, however, as has been frequently pointed out, information campaigns on any social issue that attempt to modify behavior or behavioral predispositions, find the going rough.[15] When one adds to this general result, the handicaps that shelter information programs have frequently labored under (the lack of clarity and consistency in the civil defense message, the inadequate mechanisms and procedures for responding to the public), there is little question that at present the cost-benefit ratio of peacetime communication to the universe of potential shelter occupants is unfavorable.

This should not obscure the fact that in the past, selective elements of the general population have responded favorably to peacetime CD campaigns as exemplified by the WJZ-TV case cited by Wiebe.[16] Nor should it be forgotten that the general public is, in the abstract, favorable towards the concept of civil defense when its attention is directed to the issue. For example, in an unpublished national opinion survey reported

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[15] An important summary of research on this subject is contained in Klapper, J. The effects of mass communication. New York: The Free Press of Glencoe, 1963.

[16] Wiebe, op. cit.

by Nehnevajsa[17] it was revealed that 62% of a nationwide sample said in 1961 that they would be willing to contribute a day or two to the construction of a public fallout shelter. It is difficult to define the real meaning of such a response without actually asking people to donate their time to a civil defense project but it is entirely reasonable to assume that the response is inconsistent with a truly negative attitude towards civil defense.

Peacetime shelter information should be addressed largely to the committed and predisposed, those who will attend to the messages that emanate from the civil defense organization. Upon their shoulders is carried the shelter system information base in peacetime, transmitted through shelter management, CD adult education, rural CD, medical self-help courses, and the like. But even the veteran volunteers cannot be counted on automatically to apply the results of their training. People forget, new data arise, information requirements change. It cannot be expected that survival information will be retained without refresher training or practical exercises.

A second broad segment of the general population that can be reached during peacetime may be referred to as "captive audiences." Exemplified by such categories as students or employees, a captive audience can be seen as members of an organization who can be easily reached and whose behavior can be influenced by the leadership of that organization.

The amount and types of shelter system information that can be transmitted to such groups is dependent upon a number of factors, such as the nature and extent of organizational control, the interest in preparedness planning on the part of leadership, characteristics of the audience (e.g., children versus adolescents versus adults). As an example, it is easy to visualize an assignment given to school children to identify the nearest public shelters that the family might occupy if they were to take shelter

[17]Nehnevajsa, J., op. cit., p. 314.

as a unit, and also the public shelters that individuals might occupy if they were separated by the normal course of daily activities. The assignment might extend to a family discussion of shelter-taking plans. Similarly, in a business organization that has a shelter, it would be useful for planning purposes if each employee were to provide data on the shelter plans of other members of his immediate family and for his own plans should an alert be sounded during non-working hours.

The period of increased readiness appears to be the time during which shelter information can most effectively be transmitted to the public. This statement is not phrased as a research finding, but rather as a hypothesis that further study will either refute or support.

The main change from peacetime is that the saliency of civil defense subject matter is greatly increased. This means that:

1. The public at large is more prepared to "tune in" to the civil defense message, and more likely to follow shelter guidance (e.g., preparing a supply kit to take to shelter).

2. People who meet the selection criteria for important shelter positions better than do peacetime volunteers are more likely to be available for training and assignment during a high tension period.

Certain disadvantages of public information during high tension periods must be admitted. Firstly, there is the shortage of time. An eight to twelve hour course during peacetime may have to be squeezed into 2-3 hours in a time of international turmoil. With the decrease in time there is also less margin for error. Coordination requirements become massive. There also exists the possibility of an over-reaction by elements of the population leading to group dysfunctional behaviors (e.g., hoarding). Such a possibility points to the importance of a complete, up-to-date information plan for increased readiness periods that is part of an equally complete and workable plan for maximizing the capability of a community shelter system. Much can be accomplished in the way of marking and stocking

shelters, increasing radiation protection capability and the like, if cooperation between building owners, employees, volunteers, agencies of Government, mass media, etc., becomes more than a clause in a written plan and in fact extends into actual performance.

During the time of tactical warning (attack on the way), all that can be expected of a public information system is the transmission of warning and verification information, and basic instructions to the general population (e.g., on the subject of shelter-taking).

Much of the learning about shelter survival will come as a result of the direct experience of shelter living and the orientation and training sessions that will be conducted in-shelter during its occupancy. That, plus EBS and whatever communication links are open to control centers constitutes the shelter information system for the trans-attack period.

THE MEDIA FOR SHELTER INFORMATION

Studies of the diffusion of information about major events provide some clues as to what media might be most effective in transmitting shelter information. The most recent such event that has been given system attention on a nationwide basis was the assassination of President Kennedy. One of the repeated findings of the surveys[18] conducted after the assassination was the rapidity with which the news was disseminated. From several studies it becomes apparent that about 2 out of every 3 adults heard of the shooting within 1/2 hour of the event. In less than 2 hours after the event around 9 out of 10 adults had been informed. The media through which people received the news of the assassination also has relevance for the transmission of CD information.

It appears as if about half the population was informed first through personal contacts (including phone calls) and the other half through radio and TV. A common pattern for people not at home was to hear the news through word of mouth and immediately try to get more information or verifying existing information through radio or TV. People who were at home were informed primarily by the mass media (radio and television).

Each medium of communications has inherent advantages and shortcomings for the transmission of shelter information. The following section is a brief review of the comparative capabilities of the media in different stages of the strategic environment.

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[18] See, for example:

Sheatsley, P.B., & Feldman, J.J. "The assassination of President Kennedy: A preliminary report on public reactions and behavior." The Public Opinion Quarterly. Princeton: Princeton University Press, Summer 1964, pp., 189-215.

Banta, T.J. "The Kennedy assassination: Early thoughts and emotions." The Public Opinion Quarterly. Princeton: Princeton University Press, Summer 1964, pp., 216-224.

Greenberg, B.S. "Diffusion of news of the Kennedy assassination." The Public Opinion Quarterly. Princeton: Princeton University Press, Summer 1964, pp., 225-232.

Television

TV is ubiquitous. Well over 90% of American homes are equipped with one or more television sets. Another major advantage of TV is its flexibility. It can emphasize the word or the picture or a combination of both. It can present live or recorded materials of near or distant events. If one thinks of public shelter information as a nationwide training course, television can be used to good advantage in briefing the public on shelter recognition, preparation for shelter-taking, shelter-taking procedures, the use of shelter supplies, etc. A powerful feature of television is the "authenticatability" of its content. For example, the audience can see that it is the President, or the Governor (if they recognize him), or the General speaking to them.

Television, however, is not without its disadvantages. Presently, in most instances some source of electric power other than battery is needed for reception. So, in the event of a general power failure, TV as an information medium is essentially non-existent.

A TV set is currently largely a fixed installation; one can't tune in while on the move as is the case with a portable radio. Not only is it fixed, but also the installations are non-randomly distributed. While the public is at home (e.g., at night), TV is an ideal means for reaching people in a hurry. However, it's very likely that TV audience for "quick reaction" information is a lot smaller on a warm, sunny Sunday afternoon in the springtime than it is at night. A third potential disadvantage is that the TV message is not a permanent one unless the watcher takes the additional step of recording the information in writing. So, for example, one would not televise routes or directions to public shelters without specific instruction to the audience to write down the appropriate information. Also, the pace of presentation is controlled by the communicator and not by the recipient, although constant repetition can overcome this problem. A final shortcoming of TV is the lack of immediate feedback to the communicator. TV as a means of communication doesn't provide the capability for a quick "show of hands" from an intended audience.

Although it is within the state-of-the-art to discover rapidly how many sets are turned on at a given time, it is not easy, to say the least, to determine who is listening and with what effects.

Radio

Radio's ubiquity is a function not only of the number of sets in the United States today, but also of its true portability in the form of battery-powered and automobile radios.

Radio transmission to the public is also more likely to continue prior to and during a nuclear emergency than other media due to the programming and physical preparation of selected radio stations that are part of the Emergency Broadcast System.

The major limitations of radio as an information medium are the non-visual and the transient nature of its content.[19] For shelter information, radio's great use would be in "flashing" new and crucial information to the public, in transmitting brief and simple instructions, and in reminding the public of previously communicated steps to be taken.

Newspapers

The newspaper's role in shelter information should not be underestimated. The newspaper format makes possible the presentation of

[19]There is a lesson to be learned from commerical radio broadcasting. Much of what has been subjectively called "offensive" advertising in broadcasting (e.g., loudness and repetition) was designed to overcome the inherent deficiencies of radio as a learning medium. When TV became the focus of broadcast advertising, there was a very natural tendency to adopt the old techniques for the new medium. Recently TV advertising has begun to take advantage of the unique capabilities of that medium to the extent that a number of commentators have suggested that TV advertising is currently superior to TV program content. The point to be made here is that it is not enough to select the optimum mix of communication media to deliver shelter information to the public. The successful selection and presentation of information items to fit the media capabilities and the audience needs is still the basic problem of communication.

complex information such as maps, and elaborate instructions in a semi-permanent arrangement. Although one would not expect the newspaper to be the original carrier of tactical warning data, it can be prepared to respond fairly rapidly in a strategic warning setting. While newspaper information can't be distributed as rapidly as the electronic media can, there already exist distribution procedures and mechanisms that probably can do a good job of getting special editions into the hands of the urban and suburban public. Another feature is that the newspaper is generally thought of by the public as a trustworthy medium for the presentation of important information.

It appears to us that the newspapers' unique contribution can be to review and update that vital shelter information that is optimally presented in print during the increased readiness phase.

Other Printed Materials (Magazines, pamphlets, handbills)

The pamphlet type of material has a number of distinct advantages associated with the characteristics of print media: permanance, user's control over the communication situation. However, in peacetime the general public is inundated with so much unwanted printed communication that it is difficult for the civil defense message to effect any significant penetration. Therefore, the population at large can't be depended upon to have available, during a tension period, information materials that were distributed at some prior time. The key to the effective use of these varieties of print media lies in having an accurate, up-to-date version of the information materials for distribution in a period of increased warning as well as mechanisms for getting the information in the hands of the public.

Group Meetings or Classes

Public meetings to receive shelter information permit important types of feedback to occur. The first is between the communicator and

the audience, whereby the former can gauge immediately the reaction of the latter. Secondly, the audience can get rapid response from the communicator on their questions about shelter information. The third type of feedback is the interstimulation of members of the audience which can have a powerful motivational impact on the group members in attendance.

The major problems with this form of shelter preparation are the logistic ones, which include scheduling the meetings, arranging for the appropriate audiences to attend, arranging for the communicator, and preparing the informational materials, etc.

IMPLICATIONS FOR EMERGENCY INFORMATION READINESS STEPS OF THE CSP PROGRAM

After the project was well on its way towards completion, project personnel were informed of the existence of recent additions to the Federal Civil Defense Guide dealing with Community Shelter Planning, containing guidance for public information programs during peacetime and periods of increased tension.[20] It is clear that the subject of the present report is directly relevent to the policy statements and recommendations in the CSP manuals in the FCDG.

Unfortunately, it has been impossible to provide a detailed analysis of the behavioral implications of Step II of the CSP, Emergency Information Readiness (EIR) in this report. However it was possible to tie some of the recommendations in the present analysis of shelter information requirements to EIR guidelines in the CSP manuals.

Almost all of the ensuing comments deal with peacetime activities of informing the general public about the CSP, and the individual citizen's knowledge and action requisites.

The following assumption underlies Emergency Information Readiness policy statements and recommendations:

> "Public support and understanding is essential to the success of the CSP in each locality. This means that the CSP must make sense to the people, as representing the best--and most practical--actions for survival in their locality"[21]

This is another instance where the distinctions between peacetime and wartime criteria are blurred.

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[20] Federal Civil Defense Guide, Part D. Chapter 3, Appendix 1 & 2.

[21] Ibid, page 71.

Under actual emergency conditions, the first sentence in the above statement is true. If people don't know what shelters are, or don't think that shelters can protect them, they will not volitionally go to a public shelter. To that extent the CSP will be ineffective. However, public information and support as a criterion of success of peacetime CSP activities is not patently obvious, unless, of course, one chooses to define a successful peacetime CSP program as one which enlists the support of the population at large.

Our studies of community factors and shelter utilization and management lead us to conclude that broad based public information campaigns about CSP details such as assignments, routes, preparation, etc. should not be considered a high ranking criterion in evaluating peacetime CSP activities. Accordingly, we view the requirements for peacetime public information to be the following:

1. Establish and maintain a program to make the general population aware of the CSP, and keep it abreast of its overall status.

2. Establish a mechanism to provide interested groups and individuals with readily available information about details of the CSP, upon their request.

3. Develop and update a plan and mechanisms that would inform the population of the most recent relevant details of the CSP in a rapid and reliable fashion, under increased readiness conditions.

How does this compare with the information requirements described in the CSP manuals? The following are the tasks required under CSP Step II, Emergency Information Readiness:

"1. Preparation of the "CSP individual information package", by combining OCD-furnished general emergency information material and guidance with locally produced CSP maps and instructions.

2. Developing a plan to distribute the CSP individual information package to all citizens after approval of the CSP.

3. Developing a public information plan for providing the public with information about the CSP and its role in the civil defense plan of the community, to be carried out at the time the CSP individual information package is distributed.

4. Developing a plan to communicate CSP information to the public in a period of increased international tension."[22]

The fifth task in the FCDG deals with marking previously unmarked shelters, and will be excluded from this discussion.

The major differences between the two approaches are centered in Tasks 1 & 2, dealing with the development and distribution of the "CSP individual information package." We recommend that the "individual information package" be dropped as a requirement levied upon the local community. At very best, massive community distribution of the individual information package is likely to be a wasteful exercise; moreover it has the potential to impede progress towards an effective CSP, by creating situations that can be blown up out of proportion at the local level. Instead of an individual information package, we recommend that CSP details be disseminated by a system that responds to information requests. Just as one calls the information operator at the telephone company when one wants to find a phone number, so one might be able to call up to find his assigned shelter location.

With the other emergency information steps in the FCDG, namely the plan for general CSP information, and the plan for increased readiness operations, we are in agreement.

The reasoning that has led to these recommendations is based on three types of considerations: (1) demographic and strategic factors, (2) motivational factors and (3) civil defense organizational factors.

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[22] Ibid, page 72.

Demographic and Strategic Considerations in Evaluating Public Information Programs

1. Population mobility. According to the statistical abstract of the United States,[23] about 20% of the population one year and older did not live in the same place in March 1963 as they did in March 1962. In that one-year period over 35,000,000 people moved. In the period 1955-1960, just under 50% of the population (5 years old and over) remained in the same house over that 5 year span. CSP public information therefore is not a one-shot static affair, but must be seen as a dynamic continuing operation, that continues as long as the CSP remains in effect. To be sure, the factor of population mobility is accounted for in the CSP manuals, but we cannot be optimistic about the efficacy of welcome wagons and water meter installers, for example, as long term, national approaches for reaching new inhabitants of a CSP area.[24] Both in metropolitan areas with large scale population movement and in smaller communities with limited resources, keeping the mobile component of the population informed will be a task of huge dimensions. We shall, for the present, ignore the public information implications of seasonal population movement such as to resort areas. These are mentioned in an earlier section of this report.

2. The changing landscape. The dynamic character of the shelter system should be immediately apparent to anyone who is exposed to statistics on shelter licensing, marking, and stocking. New buildings in the city, new transportation routes, the renewal of large areas within urban complexes all have a continuous effect on the number of shelter spaces and their accessibility.

3. Changing strategic groundrules and postures. Over a period of time, the minimum acceptable values of public fallout shelter criteria have fluctuated in response to new analyses of our offensive and defensive

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[23] U.S. Bureau of the Census. Statistical abstract of the United States. Washington: Author, July 1965.

[24] U.S. Bureau of the Census, op. cit., page 74.

capabilities. It should be expected that new defensive weapon systems such as the ABM, will have their effects on the shelter programs of the target area they have been assigned to defend. The minimum of 50 spaces per Federally supported shelter is not, in our opinion a number that will remain forever inviolate. Equipment and supplies to provide augmented capability (such as the PVK) will also change the map insofar as community shelter spaces are concerned.

Motivational Factors

1. Making sense to the public. According to the CSP manuals, the community shelter plan "must make sense to the people as representing the best and most practical actions for survival in the locality".[25] It is our contention that the people employ a different yardstick to measure the sense that a program makes than do civil defense planners. To the sophisticated civil defense planner, a CSP can make sense in spite of shelter deficits, marked but unstocked shelters, uneven distribution of shelters, changing criteria and the like. As we have argued before, there exists no powerful influence in peacetime that can motivate the citizenry to adjust its evaluation to account for the many temporary inadequacies of the shelter plan. The difference in the yardsticks can be illustrated with the phrase "best and most practical". The civil defense planner may believe that his is the "best" plan in the context of the constraints and limitations with which he must contend. If he is forced to advertise this plan, he may find that public expectations as to CSP adequacy are quite different from his own. To those not used to thinking in "cost/benefit" terms the phrase "best and most practical" is a disturbing one as it applies to nuclear survival. For clearly, the best plan for nuclear protection and the most practical plan for protection are different entities. The former implies a need/benefit (as opposed to cost/benefit) ratio, and we hypothesize that it is much more along the lines of what the public means by "best".

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[25] Federal Civil Defense Guide, loc. cit., page 71.

There is another aspect to the issue of making sense to the public. It is the natural resistance to change. The tendency exists to direct disproportionate attention to the perceived negative consequences of any new plan or program introduced from above, unless the recipients have been convinced previously that the specific changes in the status quo are to their advantage. Whether it be a company reorganization, a change in a school curriculum, a change in the rules of a sport, or a CSP assignment plan, one can expect that those who feel themselves involved will identify all the problems that the new approach creates, or the old problems that the new approach ignores. Given the situation where an individual has been assigned to a shelter at his work location, but at present cannot be given a shelter assignment near his home, we hypothesize that there will be far fewer people who respond with something like, "Well, at least I'm protected part of the time", and far more who will react by disparaging the CSP as an unrealistic effort. The requirement to distribute the information package to all residents regardless of public shelter availability,[26] will undoubtedly add to the "disparagement level", at least for the time that communities have shelter deficits.

The people who react, either positively or negatively, will constitute a minority of the population. The majority will find the subject of shelter assignment a matter of little or no consequence. They will do with the "individual information package" what they have done with literature for similar campaigns that have preceded the CSP materials into the American home--dispose of it, or lose it among the household possessions.

2. Reaching and affecting the public. The CSP manual makes clear its assumption that public support and understanding can be gained by a public information program. As we pointed out previously, this runs counter to a considerable body of evidence which shows that a public information and promotion campaign of the type envisaged here rarely accomplishes its intended objectives, no matter what the subject matter is. When one adds to this general finding the special considerations of the passivity of the

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[26] Ibid, page 74.

public in regard to civil defense, and the reluctance to think about nuclear attack, the prognosis for the success of any information campaign is grave indeed.[27] Under the conditions that prevail today an information package will have the overall effect of reinforcing the beliefs and actions of the minority who strongly support civil defense, increasing the negative reaction in the minority of active "antis," and will make hardly a dent on the vast majority who tend to be accepting of the concept of civil defense but largely unconcerned about it as an issue. Conceivably the information package can perform the same function as do TV and radio spots, car cards, etc., which serve to keep the public from forgetting completely that there is a civil defense function. A CSP individual information package would be an elaborate and inordinately expensive general reminder that CD exists.

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[27] The most relevant study on this point is Berlo's cited previously. His conclusion was: "In summary, then, we can estimate that something less than 13 per cent of the total adult urban population had noticed the booklet, and that something less than 7 per cent had read the booklet thoroughly. Those who read it were those who already were most informed about and favorable toward civil defense, were those who believed that such knowledge would be of help to them, and were those who were in the best position to use the information contained in the booklet. Unfortunately, however, reading the booklet did not seem to be of much help in increasing the level of understanding about or opinions toward the general area of nuclear attack and civil defense."

Berlo, D.K. The fallout protection booklet: (IV) Characteristics of readers, and an analysis of the impact of the booklet. East Lansing: Michigan State University, October 1963.

Organizational Factors

We have attempted to show that even a flawlessly executed CSP information program will have little real impact upon the populace, during "normal" times. In this section we suggest that many, if not most communities will not be able to sustain an adequate information program for any length of time.

Anyone who has had an opportunity to study the functioning of a large organization is aware of the extent to which and the reasons why guidelines from "headquarters" are modified by lower organizational levels. This tendency is amplified if the lower organizational levels are physically separated and loosely affiliated with "headquarters", as is the civil defense case.

We would, therefore, predict that the general requirements and recommendations pertaining to CSP public information will undergo extensive transformations as they filter down to the local community, and furthermore, that relatively few communities will be able to meet either the spirit or the letter of Federal guidance as it pertains to updating CSP information such as assignments and routes.

From the organizational point of view the basic problem is not that the local community won't start an information program. We feel that most communities will get something out to the public. The problems lie in the content of the information package, and more importantly, in the capability to keep this program going.

In large cities, the magnitude of population and shelter changes from year to year act as a deterrent to an updated information package; in many smaller communities, resources may be lacking to maintain the information program; in both cases it may be difficult to convince local authorities that regular information updating should be a high priority task if one is serious about peacetime CSP activities.

Illustrative of the problems that the local community might face, is the interesting one of recalling or otherwise removing out-dated CSP information. Whatever the benefits of timely information, they may be vitiated if several differing versions of CSP data packages are in the field concurrently.

* *

It has not been our objective to be critical of the CSP program, which we regard as a vital step in our nation's preparedness effort. On the contrary, our goal has been to suggest one way in which the proper environment can be created at the local level so that the CSP program can proceed in the most realistic manner possible. By realistic planning we mean that which is based on what people are likely to do, not on what people ought to do. A bulk of the evidence suggests that (1) the largest part of the public will not be affected in any real way by the individual information package and (2) those who are, will be influenced in the direction of existing commitments or pre-dispositions. These hurdles would have to be overcome

If it could be shown that distribution of CSP details in peacetime constitutes a necessary condition for effective use of the shelter system in an emergency. We believe that the OCD requirement of a plan to reinform the public in high-tension periods[28] is but one indication of the non-essential nature of peacetime information campaigns. The increased readiness phase, in which information is genuinely needed and eagerly sought should be the target for organized efforts to provide the general public with lifesaving shelter information.

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[28] Ibid, page 74.

PART II

SHELTER SYSTEM KNOWLEDGE OF A SAMPLE OF VOLUNTEERS

DESCRIPTION OF THE STUDY

In the original conceptualization of this research project, a plan was established to investigate the level of shelter information and misinformation of a nationwide sample of the American population. As the plan was further discussed, it became apparent that the amount of "new data" to be gained from a national study did not warrant the cost that such a venture would entail. Consequently, the focus of the shelter information survey was shifted from a national one to a local one. A decision was made to interrogate as many as possible of the participants in the several shelter studies that AIR conducted in 1965. It was determined that the shelter information quiz, if given to volunteers prior to their participation in the shelter studies, would not bias the subjects, in terms of the objectives of the study. The national study survey instrument was modified to meet the requirements of the local testing situation. A copy of the revised questionnaires is presented in Appendix B.

The questionnaire was administered to subjects shortly after they arrived at the shelter laboratory to take part in their assigned study. Subjects were allowed as much time as needed to complete the form. Fifteen minutes is a rough estimate of the average time that was taken to complete the questionnaire.

This survey is different from most others dealing with the general public and civil defense for two reasons: (1) the subject matter is limited to issues pertinent to the public shelter system, and (2) the survey ignores the subject of public attitudes towards civil defense, and concentrates instead on uncovering the shelter relevant information that is known by this sample of volunteers.

After completing the test, subjects were asked to review their answers and place a check next to those answers they felt sure about. "Confidence" scores are presented on p. 69.

ANALYSIS OF RESULTS

The analysis of results has been divided into six sections, approximating the questionnaire format.

The six sections are:

1. Civil Defense Orientation.
2. Knowledge of Warning Signals.
3. Knowledge of Fallout Shelters.
4. Knowledge of Fallout.
5. Understanding of Emergency Communications.
6. Demographic Variables.

Civil Defense Orientation

The first section of the questionnaire provides some indication of the respondents' level of familiarity and involvement with civil defense. Two broad questions are used to assess this familiarity. The first question asks if the respondent or members of his immediate family have taken any steps for the purpose of improving his chances of surviving a nuclear attack. Of the 278 persons in the sample 45 out of them (16 percent) replied positively to this question.[29]

Of the respondents who indicated they had taken steps, sixty-four percent reported that they stored food and/or water at home. Sixteen

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[29] Eighty-two percent responded negatively and two percent made no reply to the question.

percent indicated that they stored supplies other than food and water at home. It is interesting to note the small percentage of respondents who sought information of any kind. The responses are listed below in Tables I and II. Table III shows when these steps were taken. What stands out in the latter table is the small percentage of persons who have taken any action within the past two years.

Table I

Steps Taken to Improve Chances of Surviving a Nuclear Attack

	%
Yes	16
No	84

Table II

What Steps Taken

	%*
Stored food/water at home	64
Stored other supplies at home	16
Build a shelter	11
Took training course	7
Sought information, not otherwise specified	7
Participated in research study, shelter stay	4
Other	22
No answer	7

N=45

*Percentages add to more than 100.0% since this is a multiple response question.

Table III

When Steps Taken

	%*
Six months or less ago	2
More than six months to one year	2
More than one year to two years	9
More than two years to three years	16
More than three years to four years	11
More than four years to five years	7
More than five years to seven years	7
No answer, no time specified	48

N=45

*Percentages add to more than 100.0% since this is a multiple response question.

The second question attempts to ascertain how much exposure to civil defense the respondent has had through specific communication media dealing specifically with the topic of civil defense. Fifty-six percent of the sample answered "yes" and forty-one percent answered "no." The results shown below indicate that although many items are recalled, non-fictional television broadcasts and general booklets and pamphlets appear to be the only categories mentioned by a sizeable percentage of the respondents.

Table IV

Exposure to CD Through Communications Media

	%
Yes	56
No	41

Table V

Description of Media

	%*
Television broadcast, documentary	26
Booklet, pamphlet--not specified	23
Movie, factual or documentary	13
Civil defense booklet, pamphlet	10
Article in popular magazine	10
Article in newspaper	7
Civil defense test on television	6
Book, factual or technical report	6
Book, fiction	5
Civil defense test on radio	4
Radio broadcast	3
Television broadcast, fiction	3
Item reference, no source mentioned	15
Other	10
Don't know, no answer	5

N=156

*Percentages add to more than 100.0% since this is a multiple response question.

Knowledge of Outdoor Warning Signals

The second section of the questionnaire deals with the public's knowledge of outdoor warning signals. The respondents were asked if they knew what outdoor warning device would be used to alert their community in the event of nuclear attack. With the exception of six subjects who made no reply, the respondents split evenly on this question, one hundred thirty-six saying "yes," and the same number answering "no." When asked to describe the device, the word "siren" figured prominently in the replies.

Table VI

Knowledge of Outdoor Warning Device

	%
Yes	49
No	49

Table VII

Description of Outdoor Warning Device

	%
Siren, other than fire	49
Fire siren	12
Air raid siren	10
Whistle	9
Horn	5
Other	4
No device described	11

N=136

The one hundred thirty-six respondents who knew of the outdoor warning device were next asked how many different warning signals would be used to alert the population to an impending attack. The most frequent answer was three signals indicating the presence of a non-existent (at least in the metropolitan Pittsburgh area) third signal in the minds of thirty percent of the respondents. Another thirty-one percent of the respondents said "don't know" or gave no answer. Only twenty-seven percent gave the correct answer of two signals.

Table VIII

Number of Outdoor Warning Signals Used

	%
One	10
Two	27
Three	30
Other	1
Don't Know	32
N=136	

The one hundred thirty-six respondents were then asked what each signal meant and what each signal sounded like. One could almost predict the appearance of the non-existent "all clear" signal in Table IX, and in Table X the consistent popularity of the "long, steady, continuous" signal is noteworthy.

Table IX

Meaning of Outdoor Warning Signals

	Percent		
	First Signal	Second Signal	Third Signal
Impending attack, no time specified	38	4	0
Impending attack (5 minutes or less)	1	3	1
Attack in progress	0	12	4
Take protective action	18	14	3
Seek information	1	5	1
All clear	1	11	11
Other	3	3	3
Don't know, no answer given	38	48	77
N=	136	136	136

Table X

What Outdoor Warning Signals Sound Like

	Percent		
	First Signal	Second Signal	Third Signal
ong, steady, continuous	24	15	6
hort, intermittent, honking	19	16	2
ailing, up-down, multiple tones	18	4	1
hrill	2	1	0
oud	4	1	1
ther	3	3	1
on't know, no answer given	30	60	89
N=	136	136	136

Knowledge of Fallout Shelters

Section three begins by asking the respondents if there is a public llout shelter (or more than one) located within ten minutes walking d stance of their home. Forty-seven percent replied "yes," twenty-two rcent replied "no," and thirty-one percent said "don't know" or gave n answer.

Table XI

Nearby Public Fallout Shelters

	%
Yes	47
No	22
Don't know, no answer given	31

The forty-seven percent who had knowledge of a shelter were asked to describe the type of building. It came as no surprise to find that the most frequently given answer was "school," since a sizeable portion of the sample gave "student" as their occupation. (See section entitled Demographic Variables). When we asked the same respondents for the address of the building, twenty specific addresses were given (including street and number), ninety general addresses (including street) and nineteen general addresses that included only general location or directions.

Table XII

Type of Shelter

	%*
School	56
Public building, fire, police	18
Church, synagogue	13
Other commercial	9
Mention of type of construction	8
Apartment	5
Other	15
No answer	1

N=131

*Percentages add to more than 100.0% since this is a multiple response question.

We asked our entire sample of two hundred seventy-eight subjects if they knew how to identify a public fallout shelter and the overwhelming majority of them (eighty-three percent) answered "yes." Only fifteen percent responded "no." Two percent of the sample gave no answer.

The eighty-three percent who responded in the affirmative were then asked to identify a public shelter. Again, an overwhelming majority (eighty-eight percent) were in agreement, this time on the presence of a

"sign, poster, sticker, emblem, insignia." The only other item singled out (by thirty-six percent of the respondents) was the mention of "fallout shelter" or "shelter" on the building.

When discussing the fallout shelter, enough persons described the color and geometry of the sign to warrant a break-down of these two items. The results are given in Tables XIV and XV.

Table XIII

Ability to Identify Public Fallout Shelters

	%
Yes	83
No	15
No answer	2

Table XIV

Identification by Color

	%*
Yellow and black	46
Yellow	8
Black	3
Other	8
No mention of color	43

N=230

*Percentages add to more than 100.0% since this is a multiple response question.

Table XV

Identification by Geometry

	%*
Triangle	25
Circle	14
Arrow	8
Other	6
No mention of geometry	63

N=230

*Percentages add to more than 100.0% since this is a multiple response question.

The entire sample (N=278) was asked whether or not public fallout shelters contained any equipment or supplies provided by the Federal Government. Forty-six percent answered "yes," but only one percent said "no." The majority of respondents, fifty-three percent, answered "don't know." We asked those persons who gave a "yes" answer what supplies they thought <u>are being</u> placed in shelters. The remaining respondents were asked what supplies they felt <u>should be</u> placed in shelters. Not unexpectedly, the food and water categories were the most frequently mentioned by all respondents. The second group, or those who were asked what supplies <u>should be</u> stocked, gave noticeable more emphasis to "radios," "reading materials, magazines and books," and "other entertainment materials" than did the former group. The results of the break-down of items stocked in shelters are given on the following page.

Table XVI

Government Stocking of Shelters

	%
Yes	46
No	1
Don't know	53

Table XVII

Items Stocked in Shelter

	Percent*	
	Are Stocked	Should Be Stocked
Food	88	75
Not otherwise specified	56	54
Canned, boxed, packaged	20	20
Survival rations (biscuits, crackers, wafers)	13	3
Water	79	67
Not otherwise specified	74	63
Drums, barrel, can	5	5
Medical supplies, first aid, stretcher	50	42
Bedding, blankets, sheets	22	21
Sanitation supplies, chemical toilet	16	21
Sleeping facilities, cot, bed, mattress	11	12
Clothing	10	10
Radio	9	19
Radiological monitoring equipment	9	1
Light, flashlight	9	9
Communications equipment	6	2
Ventilation equipment, fans	5	3
Other entertainment materials	2	14
Decontamination equipment	2	3
Reading materials, magazines, books	2	13
Other	6	11
Don't know, no answer given	7	5
	N=129	N=149

*Percentages add to more than 100.0% since this is a multiple response question.

Those who answered that public shelters did contain stocked supplies were further checked for mention of any or all of the five OCD stocked items: food, water, medical supplies, sanitation supplies, and radiological monitoring equipment. Credit was given for any general mention of the item. The results are shown on the following page.

Table XVIII

Knowledge of OCD Stocked Items

	%
Mentioned five items	2
Mentioned four items	8
Mentioned three items	40
Mentioned two items	40
Mentioned one item	5
No mention of any of the five items	5

N=129

Three questions were included relating to survival in the event of attack. The first question asked how long a normal, healthy adult could survive without eating any food, assuming he had water to drink. The second question asked how long a normal, healthy adult could survive without drinking any water or other liquids, assuming he had dry food to eat. The results are shown below.

Table XIX

Survival Without Food or Water

	Percent	
	Without Food	Without Water
0- 2 days	1	12
3- 5 days	13	42
6- 8 days	19	21
9-12 days	9	8
13-16 days	15	6
17-20 days	4	1
21-25 days	12	2
26-31 days	10	2
More than 31 days	13	1
Other	0	1
Don't know, no answer given	4	4

N=278

The third question asked how long people should be prepared to remain in a shelter in the event of a nuclear attack. The table below illustrates the respondents' answers. The results show that more than half of the sample believe that in the event of a nuclear attack, a shelter stay will extend from one week to one month.

Table XX

Length of Stay in Shelter

	%
Less than one day	1
One day to two days	2
More than two days to one week	13
More than one week to two weeks	28
More than two weeks to one month	29
More than one month to three months	6
More than three months	7
Other	6
Don't know, no answer given	8

Knowledge of Fallout

Section four is a series of questions designed to determine how much knowledge of fallout the public has. We began by asking the respondents if they could give a definition of the term fallout. Interestingly enough, eighty-one percent of the entire sample felt they could give a definition for the term. Seventeen percent replied "no" and two percent gave no answer.

Table XXI

Ability to Define Fallout

	%
Yes	81
No	17
Don't know	2

The definition of fallout has been broken down into three dimensions; (1) description of fallout, (2) action of fallout, and (3) source of radiation. It may be pointed out that in Table XXII over half the respondents described fallout as "dustlike" or likened it to "debris or particles." Therefore, it is not surprising to note in Table XXIII the sizeable percentage of respondents who identified the phrase "precipitate, rain, drift, fall, drop." In the same table a large percentage of respondents (seventy-four percent) associated the word "radioactive" or "danger" with the term fallout.

Table XXII

Description of Fallout

	%*
Dust, debris, particle	60
Matter, materials, element, substance	15
Microscopic, invisible, minute	4
Fog, cloud, condensation	4
Other	12
No description mentioned	16

N=226

*Percentages add to more than 100.0% since this is a multiple response question.

Table XXIII

Action of Fallout

	%*
Radioactive, implies danger	74
Precipitate, rain, drift, fall, drop	31
Contaminate	6
Deadly	6
Pollute	4
Other	5
No action mentioned	13

N=226

*Percentages add to more than 100.0% since this is a multiple response question.

Table XXIV

Source of Radiation Mentioned

	%*
Nuclear, A Bomb, H bomb	57
Blast, bomb, explosion	20
From chemical make-up of bomb	4
No source mentioned	22

N=226

*Percentages add to more than 100.0% since this is a multiple response question.

When asked if they knew why fallout can be harmful to humans, again a large percentage (seventy-four percent) felt themselves knowledgeable on this subject. Twenty-three percent answered "no," and three percent replied "don't know" or gave no answer. The answers from the seventy-four percent were broken down into two tables, one of "Symptoms" and the other of "Results."

Table XXV

Knows Why Fallout Harmful

	%
Yes	74
No	23
Don't know	3

Table XXVI

Symptoms of Fallout

	%*
Sickness, not specified	7
Radiation sickness	6
Nausea	5
Vomiting	4
Diarrhea	3
Other	4
No symptoms mentioned	75

N=206

*Percentages add to more than 100.0% since this is a multiple response question.

Table XXVII

Results of Fallout

	%*
Death, deadly, fatal, kill	34
Burns	25
Damage to blood, white cells	13
Injury to organ, tissue	13
Genetic disfigurement	11
Loss of reproductive capabilities	8
Makes radioactive, radiates	7
Damage to bone, marrow	7
Damage to skin, skin cancer	6
Disfigures	4
Cancer, not skin cancer	4
Loss of hair	4
Damage to circulatory system	3
Eats away body, like acid	3
Other	30
No results mentioned	7

N=206

*Percentages add to more than 100.0% since this is a multiple response question.

We next asked our entire sample if there was anything that could be done to remove the danger of fallout on clothing. Fifty-five percent replied "yes," two percent said "no," and forty-three percent said "don't know" or gave no answer. We asked those respondents who said "yes" to describe what could be done. The results are given below.

Table XXVIII

Can Remove Danger of Fallout--Clothing

	%
Yes	55
No	2
Don't know	43

Table XXIX

Method of Clothing Decontamination

	%*
Remove, take-off	62
Wash body	42
Burn	16
Destroy	16
Discard, throw away	15
Wash clothes	13
Decontaminate, not specified how	5
Other	14

N=154

*Percentages add to more than 100.0% since this is a multiple response question.

Our entire sample was questioned about removing fallout from food or water sufficiently to allow eating or drinking. Thirteen percent responded affirmitively, twenty-seven percent thought that nothing could be done, and the majority of respondents (sixty percent) answered "don't know" or gave no answer. The thirteen percent who answered "yes" were asked to describe what could be done. The results are shown on the following page.

Table XXX

Can Remove Danger of Fallout--Food & Water

	%
Yes	13
No	27
Don't know	60

Table XXXI

Method of Food or Water Decontamination

	%*
Boil, sterilize, distill	40
Pare, peel	14
Let sit, time	14
Cook, burn	9
Purify, implies chemical treatment	9
Wash	6
Don't know, but something can be done	6
No answer	6

N=35

*Percentages add to more than 100.0% since this is a multiple response question.

Understanding of Emergency Communications System

The respondents were asked if they had heard of a communications system through which the public would receive emergency instructions. Seventy-one percent replied "yes," sixteen percent said "no" and thirteen percent gave no answer.

Table XXXII

Knowledge of Emergency Communications System

	%
Yes	71
No	16
Don't know	13

Those who answered "yes" were asked to name the communications system and describe how they would receive emergency instructions. The mention of the now defunct "CONELRAD" was most frequent (forty-four percent). In Table XXXIV, the majority of the respondents listed "radio" as the source of broadcast, with television running a not-too-close second.

Table XXXIII

Description of Emergency Communications System

	%*
CONELRAD mentioned specifically	44
Special station, assigned station, assigned frequency	21
No specific name or number mentioned	14
Local station, any station	14
640 and/or 1240 on the dial mentioned	12
Civil defense band	10
Known that CONELRAD not used, but cannot name station	5
Other	4
Don't know, no answer given	5

N=196

*Percentages add to more than 100.0% since this is a multiple response question.

Table XXXIV

Source of Broadcast

	%*
Radio	86
Television	15
Emergency Broadcast System, implied	8
Emergency Broadcast System, explicit	1
Source not mentioned	0

N=196

*Percentages add to more than 100.0% since this is a multiple response question.

Earlier in this report mention was made of a "confidence score" that reflected the degree of assurance respondents reported in the correctness of their answers. Table XXXV contains a rank order of the questionnaire items according to the percentage of respondents who were sure they knew the answer.

Table XXXV

"Confidence Ratings"

Question Number	Question	Per cent sure of Their Answer
5a	Identification of public shelter	63.3
9a	Definition of fallout	57.1
14a	Emergency communications system	56.1
4a	Location of public shelter	53.2
10a	Harmful effects of fallout	50.0
11a	Personal decontamination	32.3
8	Survival without water	31.7
7	Survival without food	31.3
6a	Supplies stocked in public shelter	28.4
13	Length of shelter stay	25.8
3a	Description of outdoor warning device	23.0
12a	Food and water decontamination	20.1
3d	Sound of outdoor warning signals	12.9
3c	Meaning of outdoor warning signals	11.1

N=278

Are the answers of "sure" respondents any more correct than those of the "not sure" group. Tables XXXVI and XXXVII contain the answers to the "Survival Without Water" and "Survival Without Food" questions, broken out by "sure" vs. "non-sure" respondents.

Table XXXVI

Survival Without Water

Survival Without Water Answer Categories	Percentage of "Sure" Respondents Who Gave Each Answer	Percentage of "Unsure" Respondents Who gave Each Answer
0-2 days	7	14
3-5	45	40
6-8	25	18
9-12	9	7
13-16	8	6
17-20	0	2
21-25	0	3
26-31	0	3
over 31	3	1
Other	1	1
Don't Know	1	6
	99	101
	N=88	N=190

Table XXXVII

Survival Without Food

Survival Without Food Answer Categories	Percentage of "Sure" Respondents Who Gave Each Answer	Percentage of "Unsure" Respondents Who Gave Each Answer
0-2 days	0	2
3-5	9	15
6-8	17	19
9-12	5	10.5
12-16	18	14
17-20	1	5
21-25	14	11.5
26-31	15	8
over 31	15	10.5
Other	0	0.5
Don't Know	2	3
	99	99.0
	N=67	N-191

In addition to the civil defense information presented above, each respondent was asked to provide certain personal information. Responses to these items are presented in the following tables. The total number responding to this question was 211. Because of the manner in which the two AIR studies were conducted, it was impossible to collect personal data from sixty-seven respondents.

Table XXXVIII

Occupation of Respondent

	%
Professional	6
Manager, official, proprietor	5
Clerical	7
Sales	3
Craftsman, foreman	2
Operator, semi-skilled	3
Student	49
Otner service worker	2
Other, retired, widowed, housewife	16
No classifiable (unemployed)	5
No answer	2

Table XXXVIX

Sex

	%
Male	49
Female	51

Table XL

Age

	%
Under 20	44
20-29	31
30-39	10
40-49	12
50+	3

Table XLI

Race

	%
White	91
Negro	8
No answer	1

Table XLII

Religion

	%
Protestant-any denomination	31
Catholic	58
Jewish	6
Other	2
None	2
No answer	1

Table XLIII

Marital Status

	%
Single	62
Married	33
Widowed	1
Divorced	1
Separated	1
No answer	2

Table XLIV

Number of Children Under 18

	%
One	6
Two	7
Three	8
Four	2
Five or more	3
None	39
No answer	35

Table XLV

Leadership Experience

	%*
Civilian, job related	10
Civilian, civic or service related	15
Civilian, school related	8
Civilian, social	6
Military, officer	3
Military	3
None	36
Other	1
No answer	28

*Percentages add to more than 100.0% since this is a multiple response question.

Table XLVI

Civil Defense Experience

	%
Yes, but not a leader	10
Yes, a leader	1
None	59
Other	5
No answer	25

Table XLVII

Education (Highest Grade Completed)

	%
Attended grade school	1
Finished grade school (8th grade)	4
Attended high school	23
Finished high school (12th grade)	31
Attended college	29
Finished or graduated college	7
Graduate school--any	4
Other	1

DISCUSSION

The results of this study are similar to those of other public information investigations. The impression is that civil defense information exists in the public in a patchwork of accurate or semi-accurate facts, misinformation, and lack of information.

The situation is not one which suggests a dichotomization of the public into "those who know" and "those who don't know" about shelters and other CD matters. The impression is that "the know it alls" and the "know nothings" constitute a relatively small portion of the general population, with the know nothings the larger of the two categories. The largest middle segment of the continuum represents that portion of the public that knows some facts, is ignorant of others, and is misinformed on still other matters.

The focus of this disscussion is on selected shelter information that the data reveal to be poorly understood by the public further limited to that information important for shelter survival.

The first information category to be discussed is that of warning. The data lend additional support to the well established finding that the public is by and large uninformed, misinformed or only partially informed about the nature and application of the warning system. For example, of the people who said they knew what outdoor warning signal would be used, only about one in four knew the number of different signals that might be employed. Similarly only one in four could identify the sound of the first signal (continuous tone, or any answer on that order).

The general meaning of the first signal was identified or approximated by a majority of the respondents who previously said they knew what the warning system was. This is understandable, because taking a CD information test before participating in a shelter research study

would tend to direct subjects to offer nuclear attack type answers to this question rather than community ceremonial or other type answers. It is interesting to note that this ability to logically arrive at the meaning of the first signal did not carry over to the second signal, the meaning of which was not known by a majority of persons who had indicated knowledge of the signal system.

Another vital information item pertains to knowledge of the location of public shelters. Almost half of the volunteers professed knowledge of a public shelter within 10 minutes walking distance. As mentioned in the previous section, student representation in the sample resulted in more than half of this group identifying the public shelter as a school. Almost a quarter of the sample reported that no public shelter existed within 10 minutes walking distance of their homes. Original project plans called for checking responses using shelter location data provided by the local civil defense organization. However, it was not possible to carry out this portion of the research plan. As far as identification of a shelter facility is concerned, approximately 8 out of 10 subjects reported that they could identify a public shelter. The basis for identification was overwhelmingly the existence of a sign outside the building.

Essential for survival is information about life sustaining equipment and supplies. This is illustrative of the tangle of facts and myths that exists in the population. Almost half of the sample reported knowledge of a Federal Stocking Program, whereas slightly more than half of the respondents were in the "don't know" category. Of those who knew, only two percent (five people) mentioned all five categories of supplies that the Government was placing in public shelters. Eighty percent of the group that knew about shelter stocking mentioned two or three items. A frequency count of items mentioned reveals that food and water are overwhelmingly regarded as part of shelter stocks, and that medical supplies are thought to be stocked by half the knowledgeable group. After this, the data reveal a more confused information picture. The fourth and sixth ranked items that were reported to be currently stocked were sleeping facilities

and equipment. Radiological monitoring equipment was mentioned as a stocked item with the same frequency as was lighting equipment (each receiving nine percent of the vote by the knowledgeable). With the exception of sleeping gear, those who knew about stocking relegated "comfort" items (e.g., recreational materials, books) to be an insignificant position among the shelter stocks. Only one percent of this group made any mention of guidance or instructional materials.

Responses to the question "what should be stocked," offered by volunteers who did not know whether shelters contained supplies, exhibit certain patterns in common with the previous responses. Food and water are the most frequently mentioned supplies followed by medical supplies. An interesting point is that only one percent of these respondents specifically mentioned radiological monitoring equipment as an item that should be in shelters. Three percent mentioned decontamination equipment. Only three percent mentioned that guidance or instructional materials should be placed in shelters.

It might be asked what difference it makes what people think is stocked in the shelter beforehand, if the shelter will in fact contain the necessary survival supplies? If anything approaches the status of a law in the behavioral sciences, it is that people act upon <u>their perception of a situation</u>, which may be at variance with the "facts of the matter." Thus, if people expect food and water to be in the shelter, they will look for it until it is found. If they do not expect radiation monitoring gear, they will find it if it is in an obvious location, or if guidelines are provided for equipment location.

The category of in-shelter survival information is represented by the question about survival without food or water. In spite of the fact that people generally tend to speak of "food and water" as a single entity, the data reveal an awareness of the differential importance of food and water for survival. Over forty percent of the respondents correctly identified the average survival time of 3-5 days in the absence of water,

and three fourths of the sample were within the maximum limits of about a week. The distribution of responses for survival without food are more broadly dispersed over the time spectrum. Of note here is the fact that slightly over thirty percent of the sample reported that a fast of eight days or less would be fatal to the average person.

The final information item to be discussed here deals with knowledge of fallout. An oversimplified summary of the results is that people seem to know enough about the fallout as a threat, but not enough on the subject of what to do about it. About eighty percent of the sample considered itself knowledgeable about the nature and action of fallout, and most of the responses of this segment of the sample were at least partially correct. As far as doing something about fallout (e.g., decontamination) a different picture emerges, as illustrated in Table XLVIII.

Table XLVIII

Decontamination Beliefs

	Can be Decontaminated	Cannot be Decontaminated	Don't Know
Clothing	55%	2%	43%
Food and water	13%	27%	60%

N=278

The data suggest that new decontamination guidance (especially for food and water) developed as a result of OCD re-evaluation of radiation safety criteria in emergencies, may face public acceptance problems. It raises the question as to what percentage of the sheltered population might refuse food or water that contains some radioactive particles, or maybe just dirt, through their belief in its harmful qualities?

Table XLVIII deals solely with the belief in the concept of decontamination, not with specific decontamination procedures. In regard to the latter, data reveal extensive belief in elaborate, inefficient, or incorrect procedures. For example, sixty-two percent of the 154 persons who believed in decontamination of clothing, required the "decontaminee" to remove his clothing, which can create intriguing problems for shelter management; forty-two percent implied that washing the body was necessary, which could easily lead to a squandering of water resources. What is especially interesting, is that forty percent of the small group that knew about food and water decontamination would boil, sterilize, or distill water to rid it of decontaminants.

PART III

CONTENT ANALYSIS OF OCD PUBLIC INFORMATION DOCUMENTS

THE RESEARCH PROBLEM

Introduction

One of the research tasks undertaken by the American Institutes for Research under contract OCD-PS-64-57, subtask 1534A was to conduct an analysis of civil defense documents issued for the general public in terms of the relative occurrence of fallout shelter-related topics. With this as a goal, this report seeks to identify the major topics in official fallout shelter literature and to provide a description of the frequency of their occurrence in the relevant documents.

The report should not be taken as evidence of the relative frequency of certain topics occuring within the mass media of the nation as a whole, since the analysis was limited to non-technical, non-fictional pamphlets with a circulation of over 50,000 issued by agencies of the Federal Government.

By and large, the problems of analysis which arose in this study of communication content were simply specific instances of general problems of analysis and interpretation. Here, as elsewhere, the execution of the study demanded that: (1) the research problem be formulated; (2) that a study design be developed; (3) that the categories be established for the classification of data; and (4) that the data be systematically tabulated and summarized in terms of these categories.

Purpose of the Study

The problem to be solved in this analysis may be stated in terms of its purpose. The purpose is fivefold.

(1) To describe trends in the content of fallout shelter communication from the Government to the public.

> The most valuable use of studies of content...is in noting trends and changes in content. Systems of classification may be inadequate and unstandardized; nevertheless, if a system is used consistently over a period of time, valuable facts appear.[30]

Such trend studies provide a valuable historical prospective against which the current content of the communication media can be more fully understood. Some students have even suggested the organization of continuing trend studies of major media on various topics in order to provide a background against which particular studies could be interpreted.

(2) To compare qualitative levels of fallout shelter communication content.

Different levels of communication not only attract different audiences, but they also treat the same topics in different ways. For both of those reasons, the comparative analysis of communication content is among the most promising application of content analysis. This was illustrated in a study which is distinctive for its comparison of different quality levels. The study was done by Blythe who investigated the extent to which the basic findings of research monographs were incorporated in secondary school texts on American History.[31] About 30 new emphases in historical scholarship from 1893 to 1938 were compared.

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[30] Albig, W. "The content of radio programs--1925-1935," Social Forces. 16, 1938, 338-349.

[31] Blythe, Irene T. "The textbooks and the new discoveries, emphases, and viewpoints in American history," Historical Outlook. 1932, 23, 395-402.

(3) To audit fallout shelter communication content against objectives.

Every communication outlet has an objective or a set of objectives whether implicit or explicit. One measure of the quality of content is the extent to which it faithfully expresses such objectives. Not many studies have been done primarily with reference to this function of content analysis. A large number have compared content emphases with the standards of the analyst, but only a small number have checked content against the communicator's own objectives. Sometimes such analyses are made by "outsiders" on the basis of assumed objectives of the communicators. Using the communicators objectives, however, content analysis can be employed to correct the constant, often inadvertent, and perhaps inevitable omissions from and misemphases in communication content.

(4) To construct fallout shelter communication standards.

Content analysis can describe communications but it cannot, per se, evaluate them. Evaluation necessitates the acceptance of a standard or standards with which the communication content is then compared by means of content analysis. This objective is one step removed from simple description; it is inferential. That is as a result of the implementation of the fore-mentioned objectives, standards can be derived. The technique for standard derivation and thus evaluation will be internally based, i.e., within the content itself, in which case comparisons are made between one body of content and another. For example, in a study of ethical and unethical behavior by representative newspapers, the performances of several papers were evaluated against the average socialization-sensationalism profile in a group of papers highest in socialized news attention.[32] Thus, the papers were compared on

[32] Kingsbury, Susan M., Hart, H., & et. al. Newspapers and the news: An objective measurement of ethical and unethical behavior by representative newspapers. New York: Putman and Sons, 1937.

this standard with one another as well as with the norm of the better newspapers.

(5) To aid in fallout shelter technical research operations.

To some extent, content analysis has been used as one step in a series of research operations. The major use here is the same. In recent years there has been considerable development in the methods of instrument construction in order to collect various kinds of information, opinions, and interaction data. One indispensible advantage is to know, in advance, which kinds of data are relevant to respondents such that valuable time, effort, and money are not spent uselessly in requiring respondents to answer meaningless questions. An a priori content analysis can be useful in such instrument construction.

DESIGN OF THE STUDY

Introduction

In making the plans for the study and in choosing the specific technical procedures to implement it, basic decisions had to be made relative to how the data were to be gathered, collated, and presented. The primary criteria guiding these decisions were appropriateness, fit between the problem and study design, utility, practicality, and the classic ones of validity and reliability.

The following specific questions were answered in making the decisions:

1. What is the sampling design?
2. What is the method of collecting the data?
3. What is the method of processing and analyzing the data?

Sampling Design

Populations to be Sampled

There were three populations from which samples were to be drawn: (1) a population of titles, (types of documents), (2) a population of dates, and (3) a population of content.

The population of titles was printed civil defense material which is available for public consumption. For practical purposes, the following kinds of titles were eliminated from consideration:

1. Books (hardback and paperback)
2. Reports, information kits, monographs, and academic papers.
3. Publications with a circulation of less than 50,000.

4. Fictional material.

5. Leaflets.

6. Completely pictorial materials.

7. CD articles or excerpts in non-CD documents.

The population of dates extends from 1959-1964. To be included in the sample, a document had to be printed or reprinted since 1959, be available for public distribution as of the middle of 1965, and meet the criteria established above.

Specifying and sampling the population of content is, of course, exactly what the technique of content analysis is all about. This sampling step will, therefore, be discussed in greater detail in the next few paragraphs.

Content Categories

Content analysis stands or falls on its categories. Particular studies have been productive to the extent that the categories were well adapted to the problem and to the content. Content analysis studies done on a hit or miss basis, without clearly formulated problems for investigation and with vaguely drawn and poorly articulated categories are almost certain to be of indifferent or low quality. With this caution in mind the categories in this study were carefully derived logically and were empirically modified. The categories along with rules for the assignment of units of content are found in Appendix A. The major categories are of a subject matter sort which are designed to answer the question "what is the communication about?" This is the basic question in analyses primarily concerned with determining the relative emphases given to different topics in a body of communication content. The topics are subject matter categories in the same sense that a subject of a sentence is its subject matter. The sub-categories are subject-predicate assertions and are designed to answer the question "what is said about the subject matter?"

The topics were derived by first assuming that fallout shelter information has relevance in at least two distinct phases, the pre-shelter phase and the in-shelter phase. There was initially a post-shelter phase; but it received only minimal attention in the documents so it was dropped. In the pre-shelter phase, the information was broadly categorized into knowledge and action, but recognizing the number of kinds of fallout shelter knowledge and action, further categorizing was necessary. With regard to action, a distinction was necessary between long range and short range and between public shelter and non-public shelter orientations.

In the in-shelter phase, no distinction was made between knowledge and action. However, broad distinctions were necessary among entry operations, routine operations, and special problems. Within each of these, the categories were consistent with the breakdowns used in previous shelter management research conducted by the American Institutes for Research.

By definition, content analysis calls for the quantification of units of content. In the literature of content analysis, six major units of content (for analysis) have appeared: words, themes, sentences, characters, items, and time-and-space measures. Each of these is considered as a recording unit occurring within a more inclusive context unit. Since it was desirable to use, as a unit of content the one which, in its unmodified form, most nearly approximates the way in which ideas, issues, and attitudes are usually discussed, the sentence was chosen. The sentence, in its most compact form, is a simple subject and predicate; it is an assertion about a subject matter. <u>That subject matter, rather than the assertion, constitutes the unit which was coded in the category scheme</u>. Of course, the sentence itself, then became the more inclusive context within which the subject matter occurred. Further, since sentences may be simple, complex, or compound, each independent clause of each higher-than-simple sentence had to be considered as a separate context within which a subject matter could occur.

Other Relevant Variables

It was expected that all of the categories would be modified by certain other relevant descriptive factors. From among the universe of posible factors, those which emerged as most influential were: (1) Qualitative Emphasis (by which is meant such variables as type face, use of illustrations, etc.), (2) Particular Document and page location, (3) Sponsoring Agency of the Document, and (4) the Year in which the Document was published. Each of these is discussed in more detail in Appendix A.

Data Collection and Analysis

Coding

After having been thoroughly trained and tested, coders were assigned to: (1) read each pamphlet thoroughly, (2) go through each pamphlet a second time and underline each independent clause vis-a-vis the logically derived category scheme; and (3) write each relevant independent clause along with its coded category designation and other pertinent data on a 3 by 5 card.

The 3 by 5 cards on which the units of content were initially entered contained, all total, seven bits of information: (1) the alpha-numeric category designation of the unit of content; (2) the source title; (3) the publishing agency; (4) the page, within the source, on which the unit of content occurred; (5) the date of the publication of the source; (6) the actual unit of content itself; and (7) the level of qualitative emphasis. Thus, the 3 by 5 cards looked like the following:

II-A-2a

1. The Family Fallout Shelter
2. OCDM
3. Page 17
4. June 1959
5. "Forty-nine hours after an atomic burst the radiation intensity is only about 1 percent of what it was an hour after the explosion."
6. Moderate

The data were then stored on IBM data cards.

From the data-storage sheets on the following pages, a clear indication can be obtained of the ranges of information utilized in this study. The only variable which needs clarification is (qualitative) emphasis. The variable was measured on a five-point scale by the coders' asking themselves five questions each time they encountered a unit of content:

1. Is it italicised?
2. Is it illustrated?
3. Is it enumerated?
4. Is it a topic sentence?
5. Is it enclosed in quotation marks or punctuated with an exclamation point?

If the answer to any three or more of these questions were "Yes", the unit of content was considered as Very Strongly emphasized. If the answer to any two were "Yes", the unit of content was considered as Strongly emphasized. If the answer to any one were "Yes", the unit of content was considered as Moderately emphasized. If the answer to all of the questions were "No", the unit of content was considered as Weakly emphasized. And finally, if the unit of content were parenthetical, it was considered as Very Weakly emphasized.

Reliability

Inference to the category scheme were made directly by the coders. Since by the nature of content analysis objectivity or near objectivity must be achieved and since more than one coder was used, reliability became doubly problematic. First, the reliability of single coders was assured by training and by selecting a sample of each coders work and correlating it with the same work done by the supervising researcher. Inter-coder reliability was determined in a similar manner. Six correlations were run on a selected sample of work among the four coders. In both cases, the correlations were consistently high.

Data Processing

Since the study is essentially descriptive, no elaborate processing and analysis techniques were utilized. However, very careful counting procedures were required because a high degree of accuracy and objectivity was called for and there were a large number of highly specific categories to which units of content were to be assigned. Therefore, automatic data processing equipment was utilized.

Tabular representations showing frequencies and percents were used in the analysis. Even though a number of other implications were uncovered in the data, the analysis was conducted only within the context of the purposes stated at the outset.

ANALYSIS OF THE RESULTS

There were a total of 6,079 sentences and illustrations in the 25 pamphlets used in the study. Table XLIX lists the documents analyzed and the number of sentences and illustrations in each. Approximately 3,600 content units were coded in the analysis. Of this number, approximately 61 percent pertain to the categories that are referred to as the Pre-Shelter phase. This includes (1) general knowledge, (2) actions relating to shelter planning, and (3) warning and shelter-taking. The remaining 39 percent of the content units deal with the In-Shelter phase, made up of (1) immediate actions in the entry period, and (2) "routine" actions.

For purposes of analysis, the over two hundred categories of the original data collection scheme have been combined into the 15 subject categories that are listed in Table L. The table also contains the number and percentage of total content unit for each subject category.

Looking over the distribution of content units in what is essentially the universe of written public information made available to the population over the past five years, one is struck by several points. The first is the extent to which the documents have been monopolized by three large content categories: radiological protection, other weapon effects, food and water. Together these topics account for almost 2/3 of all the shelter related content units that were coded in this study. To be sure, these problems are vitally related to shelter survival, but their solutions are a necessary and not sufficient condition for shelter survival.

Perhaps the most significant information gap is that associated with maintaining tolerable atmospheric conditions. Only about 1 percent of all content units dealt with the subject of atmosphere or temperature ventilation. Almost as dramatic from a survival standpoint is the lack of attention given

to the subject of power and illumination with less than 1/2 percent of all content units given over to these two important issues.

At the time the project was initiated, the pamphlets were obtained from sources that were open to any interested group. Subsequently, some of the documents have been formally declared obsolete, after the analysis was well under way. In order to determine whether the current, official OCD public information picture had changed with these deletions, we compared the distribution of content in the 8 documents of our sample that were listed as available to the public in the latest OCD Publications Index with all other documents. The "current" OCD subsample consists of the following documents:

1. Your farm preparedness plan.
2. Your family survival plan.
3. Family food stockpile for survival.
4. Fallout protection--What to know and do about nuclear attack.
5. Family shelter designs.
6. Defense against radioactive fallout on the farm.
7. Facts about fallout protection.
8. What you should know about radioactive fallout.

"Others" consist of obsolete OCD documents and pamphlets sponsored by other agencies. This comparison is presented in Table LI. There is perhaps a little better balance in the current OCD pamphlet package, but there still remains a bunching of content on the three main topics of radiation, food and water, and other weapon effects, and a neglect of other vital survival issues.

Table LII permits comparison of the 25 documents in the sample in terms of the 15 major content categories. Inspection of this table will reveal which documents have the breadth of coverage that make them suitable for a general introduction to the public shelter system.

Although frequency of mention is a standard indicator of "importance" of materials in a content analysis, it is by no means the only basis for priority ordering content. Another approach involves the assessment of the emphasis given to subject matter. For example, an item in a newspaper may be referred to only once, but if it is in a front page picture, it may carry more weight than more numerous references to another item that is buried in the back pages.

Based on criteria described on page 76 each content unit was judged as to its emphasis, ranging on a five point scale from very strong to very weak. The results of this portion of the analysis are presented in Tables LIII to LVI. It should be noted that the content categories of Tables LIII to LVI are different from those of the previous tables. Tables LIII to LVI contain the contextual categories: pre-shelter versus in-shelter phase; information versus action orientation; long-range versus short-range action orientation; public versus other shelter. This is a very close approximation to the actual content analysis scheme according to which the 3,600 content items were classified.

DISCUSSION

Quantity of content is by itself an insufficient criterion for evaluating the success of the OCD public information documentation effort. Clearly, such an evaluation requires looking at the accuracy of the written materials, and their intelligibility to the intended audience, as well as the frequency and the emphasis with which certain subjects are covered. However, an analysis of distribution of content can serve as a useful diagnostic aid. The two most important ways it can be so used are in the identification of information gaps, and in the assessment of the balance of presentation. In the former use, it can be observed that certain information items, vitally related to shelter survival, are given very little coverage in the sample of documents. This includes ventilation and all its ramifications, and illumination. This would seem to call for another "what to know about..." pamphlet, or more reasonably, the incorporation of ventilation and illumination information into a new, modern "primer" on the shelter system for public distribution. The social-psychological setting of shelter living also receives little treatment. As far as balance is concerned, it has already been mentioned that almost two thirds of the shelter related content is devoted to the subjects of radiological matters, other weapon effects, and food and water. The improvement in the balance in the subsample of current OCD documents has also been noted.

It appears to us as if the development of the existing package of public information documents has followed a path common to many long term information campaigns. That is to say, documents on very specific subjects get added to the repertoire of pamphlets, when it is determined that there is a need for information on that particular subject. Documents get deleted from the package when the need is perceived as no longer being a real one, or when the information base has changed so much that a new

booklet is needed on a particular subject. Looking at the sample of CD documents, one gets the impression that they do not fit into an overall plan for documentation of public shelter information.

It is our overall hypothesis that the general public should not be hooked into the community shelter system until the need or the capability has been established. From this it follows that studies of public use of CD information should not focus on the large majority that does not avail itself of CD materials, in an attempt to increase the CD public information audience. Research should instead delve into the minority that has requested and used civil defense information. This is the segment of the population for whom civil defense is a high-saliency issue. Have <u>their</u> information needs been adequately dealt with in the package of available guidance materials?

Studies on the <u>actual use</u> by requestors of documents such as those in this sample would in our estimation have the greatest payoff for the development of a maximally useful guidance package. Booklets, brochures, mass media campaigns will by themselves, not turn civil defense into a high-saliency issue in the United States today. But once need and capability combine to raise the saliency level of civil defense, the role of public information will be crucial in sustaining the level of interest and in translating interest and concern into appropriate action. That is why we see the issue not as, "How can we make CD guidance more 'palatable' today?", but rather as "How can CD guidance do the job best, once public interest in survival has been raised to a salient level?"

Table XLIX

Number of Units of Content by Source

	Pamphlet Title	Total Number of Sentences	Total Number of Illustrations	Total Number of Content Units	Number of Content Units Analyzed
1.	Soil, Crops, and Fallout from Nuclear Attack	102	4	106	60
2.	Fallout Protection for Dairy Cattle	200	15	215	62
3.	Fire-Fighting for House Holders	323	5	328	214
4.	RACES--Radio Amateur Civil Emergency Service	36	5	41	12
5.	Rural Fire Defense	100	9	109	110
6.	Fallout from Nuclear Tests	342	15	357	156
7.	Fallout from Your Farm Food	90	5	95	73
8.	Your Tomorrow	34	4	38	40
9.	Your Farm Preparedness Plan	107	8	115	17
10.	Organized Action for Civil Defense	113	1	114	80
11.	Your Family Survival Plan	97	11	108	87
12.	Fallout from Nuclear Attack--Your Livestock Can Survive	109	8	117	96
13.	Family Food Stockpile for Survival	274	13	287	148
14.	Radioactive Fallout in Time of Emergency	685	23	708	297
15.	What To Know and Do about Emergency Sanitation at Home	340	13	353	321
16.	Fallout Protection--What To Know and Do about Nuclear Attack	520	26	546	428
17.	Family Shelter Designs	375	49	424	121
18.	Defense Against Radioactive Fallout on the Farm	342	17	359	223
19.	Facts about Fallout Protection	74	22	96	93
20.	Family Fallout Shelters of Wood	74	9	83	31
21.	Ten for Survival	136	18	154	200
22.	Home Protection Exercises	615	32	647	270
23.	What You Should Know about Radioactive Fallout	153	7	160	178
24.	What You Should Know About the National Plan for Civil Defense and Defense Mobilization	186	19	205	89
25.	The Family Fallout Shelter	282	32	314	186
		5,709	370	6,079	3,592

Table L

Summary of Distribution of Content

Content Category	Total Number of Content Units	Per Cent of Total
Radiological	1283	35.7
Food and Water	553	15.4
Other Weapon Effects	520	14.5
General Shelter (location, configuration, etc.)	384	10.7
Medical Care	124	3.4
Communication	161	4.5
Training	119	3.3
Supply Management and Facilities (unspecified)	116	3.2
Shelter Organization and Management	54	1.5
Sanitation	106	3.0
Ventilation, Temperature, Atmosphere Control	40	1.1
Psychological and Social Activities (also Stress)	28	.8
Power and Illumination	15	.4
Sleeping (Bunking)	10	.3
Other	79	2.2
	3592	100.0

Table LI

Distribution of Content by Current OCD and Other Documents

Content Categories	Current OCD Public Information Documents		Other CD Public Information Documents	
	Number of Content Units Analyzed	Per Cent	Number of Content Units Analyzed	Per Cent
Radiological	444	29.2	839	40.6
Food and Water	330	21.7	223	10.8
Other Weapon Effects	169	11.1	351	17.0
General Shelter	146	9.6	238	11.5
Medical Care	103	6.8	21	1.0
Communication	64	4.2	97	4.7
Training	21	1.4	98	4.7
Supply Management and Facilities (unspecified)	77	5.0	39	1.9
Shelter Organization and Management	24	1.6	30	1.4
Sanitation	95	6.2	11	.5
Ventilation, Temperature, Atmosphere Control	17	1.1	23	1.1
Psychological and Social Activities (also Stress)	11	.7	17	.8
Power and Illumination	5	.3	10	.5
Sleeping (Bunking)	0	.0	10	.5
Other	17	1.1	62	3.0
	1523	100.0	2069	100.0

Table LII

Distribution of Content by Pamphlet

Subjects	Titles of Documents: 1. Soil, Crops, Fallout — No. of Content Units	1. Soil, Crops, Fallout — Per Cent	2. Protection of Cattle — No. of Content Units	2. Protection of Cattle — Per Cent	3. Fire Fighting — No. of Content Units	3. Fire Fighting — Per Cent	4. RACES — No. of Content Units	4. RACES — Per Cent	5. Rural Fire — No. of Content Units	5. Rural Fire — Per Cent
Radiological	51	85.0	24	38.7	0	0.0	0	0.0	6	5.5
Food and Water	0	0.0	25	40.3	4	1.9	0	0.0	1	0.9
Other Weapon Effects	1	1.7	1	1.6	198	92.5	0	0.0	44	40.0
General Shelter	5	8.3	7	11.3	0	0.0	0	0.0	31	28.2
Medical Care	0	0.0	0	0.0	1	0.5	0	0.0	0	0.0
Communication	3	5.0	1	1.6	0	0.0	10	83.3	2	1.8
Training	0	0.0	0	0.0	11	5.1	1	8.3	22	20.0
Supply Management and Facilities (unspecified)	0	0.0	0	0.0	0	0.0	0	0.0	2	1.8
Shelter Organization and Management	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sanitation	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Ventilation, Temperature, Atmosphere Control	0	0.0	0	0.0	0	0.0	0	0.0	1	0.9
Psychological and Social Activities (also Stress)	0	0.0	2	3.2	0	0.0	0	0.0	0	0.0
Power and Illumination	0	0.0	1	1.6	0	0.0	0	0.0	0	0.0
Sleeping (Bunking)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	0	0.0	1	1.6	0	0.0	1	8.3	1	0.9
Totals	60	100.0	62	99.9	214	100.0	12	99.9	110	100.0

(This table is continued on the next page.)

Distribution of Content by Pamphlet (continued)

Subjects	Titles of Documents									
	6. Fallout from Tests		7. Fallout and Food		8. Your Tomorrow		9. Farm Preparedness		10. Organized Action in CD	
	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent
Radiological	135	86.5	53	72.6	5	12.5	13	76.4	4	5.0
Food and Water	0	0.0	14	19.2	2	5.0	0	0.0	9	11.2
Other Weapon Effects	21	13.5	0	0.0	1	2.5	0	0.0	2	2.5
General Shelter	0	0.0	3	4.1	16	40.0	0	0.0	21	26.2
Medical Care	0	0.0	0	0.0	0	0.0	0	0.0	3	3.8
Communication	0	0.0	0	0.0	0	0.0	2	11.8	3	3.8
Training	0	0.0	0	0.0	13	32.5	0	0.0	19	23.8
Supply Management and Facilities (unspecified)	0	0.0	0	0.0	0	0.0	0	0.0	5	6.2
Shelter Organization and Management	0	0.0	0	0.0	0	0.0	2	11.8	5	6.2
Sanitation	0	0.0	1	1.4	0	0.0	0	0.0	0	0.0
Ventilation, Temperature, Atmosphere Control	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Psychological and Social Activities (also Stress)	0	0.0	2	2.7	0	0.0	0	0.0	0	0.0
Power and Illumination	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Sleeping (Bunking)	0	0.0	0	0.0	0	0.0	0	0.0	2	2.5
Other	0	0.0	0	0.0	3	7.5	0	0.0	7	8.8
Totals	156	100.0	73	100.0	40	100.0	17	100.0	80	100.0

(This table is continued on the next page.)

Distribution of Content by Pamphlet (continued)

Subjects	11. Family Survival Plan		12. Livestock Can Survive		13. Family Food Stockpile		14. Fallout in Emergency		15. Emergency Sanitation	
	Titles of Documents									
	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent
Radiological	29	33.3	39	40.6	25	16.9	217	73.1	32	10.0
Food and Water	26	29.9	27	28.1	117	79.0	36	12.1	151	47.2
Other Weapon Effects	4	4.6	1	1.0	1	0.7	34	11.5	5	1.6
General Shelter	5	5.7	9	9.4	0	0.0	6	2.0	13	4.1
Medical Care	4	4.6	0	0.0	0	0.0	0	0.0	6	1.8
Communication	0	0.0	6	6.3	1	1.7	0	0.0	19	6.0
Training	2	2.3	0	0.0	0	0.0	0	0.0	2	0.6
Supply Management and Facilities (unspecified)	8	9.2	1	1.0	2	1.3	1	0.3	32	10.0
Shelter Organization and Management	0	0.0	0	0.0	1	0.7	1	0.3	3	0.9
Sanitation	1	1.2	0	0.0	0	0.0	0	0.0	53	16.6
Ventilation, Temperature, Atmosphere Control	4	4.6	0	0.0	0	0.0	1	0.3	2	0.6
Psychological and Social Activities (also Stress)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Power and Illumination	0	0.0	2	2.1	1	0.7	0	0.0	2	0.6
Sleeping (Bunking)	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Other	4	4.6	11	11.5	0	0.0	1	0.3	0	0.0
Totals	87	100.0	96	100.0	148	100.0	297	99.9	320	100.0

(This table is continued on the next page.)

Distribution of Content by Pamphlet (continued)

Subjects	16. Fallout Protection		17. Family Shelters		18. Defense Against Fallout		19. Facts About Fallout		20. Shelters of Wood	
	Titles of Documents									
	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent
Radiological	170	39.7	28	23.1	136	61.0	59	63.4	2	6.5
Food and Water	33	7.7	0	0.0	22	9.9	4	4.3	0	0.0
Other Weapon Effects	69	16.1	12	9.9	14	6.3	2	2.2	0	0.0
General Shelter	54	12.6	46	38.0	18	8.1	1	1.1	25	80.6
Medical Care	38	8.9	0	0.0	2	0.9	2	2.2	0	0.0
Communication	8	1.9	0	0.0	16	7.2	12	12.9	0	0.0
Training	3	0.7	0	0.0	0	0.0	1	1.0	0	0.0
Supply Management and Facilities (unspecified)	8	1.9	18	14.9	1	0.4	4	4.3	0	0.0
Shelter Organization and Management	8	1.9	0	0.0	2	0.9	2	2.2	0	0.0
Sanitation	13	3.0	17	14.1	1	0.4	1	1.1	0	0.0
Ventilation, Temperature, Atmosphere Control	10	2.3	0	0.0	0	0.0	0	0.0	4	12.9
Psychological and Social Activities (also Stress)	3	0.7	0	0.0	7	3.1	1	1.0	0	0.0
Power and Illumination	0	0.0	0	0.0	2	0.9	0	0.0	0	0.0
Sleeping (Bunking)	0	0.0	0	0.0	0	0.0	4	4.3	0	0.0
Other	11	2.6	0	0.0	2	0.9	0	0.0	0	0.0
Totals	428	100.0	121	100.0	223	100.0	93	100.0	31	100.0

(This table is continued on the next page.)

Distribution of Content by Pamphlet (continued)

Subjects	21. Ten for Survival		22. Home Protection		23. What Know About Fallout		24. What Know About the National Plan		25. Family Fallout Shelters	
	Titles of Documents									
	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent	No. of Content Units	Per Cent
Radiological	50	25.0	11	4.1	117	65.7	18	20.2	59	31.7
Food and Water	30	15.0	41	15.2	6	3.4	0	0.0	5	2.7
Other Weapon Effects	17	8.5	66	24.4	13	7.3	6	6.7	8	4.3
General Shelter	43	21.5	23	8.5	4	2.2	5	5.6	49	26.3
Medical Care	1	0.5	59	21.8	1	0.6	6	6.7	1	0.5
Communication	28	14.0	18	6.7	11	6.2	10	11.2	11	5.9
Training	15	7.5	16	5.9	3	1.7	9	10.1	2	1.1
Supply Management and Facilities (unspecified)	10	5.0	15	5.6	0	0.0	4	4.5	5	2.7
Shelter Organization and Management	0	0.0	8	3.0	1	0.6	7	7.9	14	7.5
Sanitation	4	2.0	10	3.7	0	0.0	2	2.2	3	1.6
Ventilation, Temperature, Atmosphere Control	0	0.0	1	0.4	1	0.6	1	1.1	15	8.1
Psychological and Social Activities (also Stress)	1	0.5	1	0.4	1	0.6	5	5.6	5	2.7
Power and Illumination	0	0.0	1	0.4	0	0.0	0	0.0	6	3.2
Sleeping (Bunking)	0	0.0	0	0.0	1	0.6	0	0.0	2	1.1
Other	1	0.5	0	0.0	19	10.7	16	18.0	1	0.5
Total	200	100.0	270	100.0	178	100.2	89	99.8	186	99.9

Table LIII

Detailed Distribution of Content by Emphasis: Pre-Shelter Knowledge

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
PRE-SHELTER PHASE						
Requisite Knowledge						
Descriptions of Weapons	0	7	12	5	0	24
Descriptions of Explosions	0	16	11	8	1	36
Descriptions of Weapon's Effects:						
Blasts	1	6	20	9	0	36
Shock	0	5	5	4	0	14
Fire	0	9	32	24	0	65
Heat	1	8	13	12	0	34
Light	0	0	0	1	0	1
Fallout and Radioactivity	8	82	258	139	2	489
General, Not Otherwise Classified	1	2	10	12	0	25
Knowledge About Shelters:						
Shelter Organization (Social)	0	0	8	2	0	10
Shelter Building: Structure and Configuration	13	25	32	20	0	90
Shelter Location	0	0	8	1	0	9
Shelter Facilities	34	56	145	62	0	297
Signals	6	5	1	0	0	12
General Knowledge, Not Otherwise Classified	0	5	29	13	0	47

Table LIV

Detailed Distribution of Content by Emphasis: Pre-Shelter Actions

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
PRE-SHELTER PHASE Actions						
Short-Range Protective Actions With Public Shelter:						
Identification of Signals and Reality Checks	2	3	8	1	0	14
Preparation Time After Signals	0	0	2	0	0	2
Identification of Shelter	0	1	1	0	0	2
Assignment to Shelter and Shelter Taking	0	2	3	0	0	5
Items to Take to Shelter	1	2	1	0	0	4
Transportation Modes to Shelter and Movement Around Shelter	0	3	5	3	1	12
Psycho-Social Stress During Shelter Taking	0	3	2	0	0	5
Managerial Tasks During Shelter Taking	0	2	0	0	0	2
Other	0	1	1	0	0	2
Long-Range Protective Actions With Public Shelter:						
Shelter Organization (Social)	0	3	0	0	0	3
Shelter Building: Structure and Configuration	1	2	5	2	0	10
Shelter Capacity	2	6	8	2	0	18
Shelter Location	0	9	4	1	0	14
Shelter Facilities	1	21	11	5	0	38
Training	1	14	24	8	0	47
Other	1	2	7	1	0	11

(This table is continued on the next page.)

Detailed Distribution of Content by Emphasis: Pre-Shelter Actions (continued)

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
PRE-SHELTER PHASE, Actions (continued)						
Long-Range Protective Actions Without Public Shelter:						
Without Any Shelter	0	1	3	1	0	5
With Expedient Shelter	3	9	13	6	0	31
With Family Shelter	113	227	273	77	1	691
Other	1	1	6	4	0	12
Short-Range Protective Actions Without Public Shelter:						
Signal Identification and Reality Checks	1	1	5	0	0	7
Without Any Shelter	0	2	2	1	0	5
With Expedient or Family Shelter	1	2	18	2	0	23
Other	0	2	2	0	0	4
General Actions, Not Otherwise Classified	0	0	3	3	0	6

Table LV

Detailed Distribution of Content by Emphasis: In-Shelter Entry Operations

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
IN-SHELTER PHASE						
Entry Operations						
Obtaining a Map of the Shelter	0	1	1	1	0	3
Filling the Shelter	0	1	1	3	0	5
Assumption of Command	0	1	0	1	0	2
Augmenting Shelter Supplies	1	4	1	1	0	7
Closing the Shelter Doors	1	1	1	1	0	4
Setting Up Temporary Shelter Organization	0	4	2	2	0	8
Initial Preparation for Possible Weapon Effects	1	0	0	0	0	1
Initial Protection Against Fallout	12	41	59	22	3	137
Initial Medical Care	1	2	3	0	0	6
Initial Fire Protection	2	5	6	3	1	17
Initial Food Provisions	0	1	1	3	0	5
Initial Water Provisions	3	6	4	0	4	17
Initial Preparations for Repair and Maintenance	0	0	1	0	0	1
Initial Preparations for Administration	2	5	9	4	0	20
Initial Bunking Provisions	0	0	1	0	0	1
Initial Psychological Support	0	0	1	0	0	1

Table LVI

Detailed Distribution of Content by Emphasis: In-Shelter Routine Operations

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
IN-SHELTER PHASE						
Routine Operations						
Radiological Protection:						
Detection	19	12	57	43	1	132
Monitoring	25	34	23	14	1	97
Diagnosis	8	12	24	20	0	64
Decontamination	6	3	13	3	0	25
Other Weapon Effects:						
Blast	0	1	0	1	0	2
Thermal	0	0	1	1	0	2
Fire:						
Prevention	1	1	3	1	0	6
Control	0	2	1	2	0	5
Temperature and Atmosphere Control:						
Atmosphere Control	2	7	17	9	0	35
Temperature	0	0	1	3	0	4
Power and Illumination:						
Power	0	1	2	0	0	3
Illumination	2	0	3	0	0	5

(This table is continued on the next page.)

Detailed Distribution of Content by Emphasis: In-Shelter Routine Operations (continued)

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
IN-SHELTER PHASE, Routine Operations, (continued)						
Food:						
Procurement	7	10	12	4	3	36
Inventory	0	0	1	1	0	2
Rationing	0	2	4	0	0	6
Decontamination	4	13	26	21	2	66
Consumption	4	3	10	8	0	25
Storage	3	12	19	12	1	47
Preparation	4	5	3	4	1	17
Distribution	0	0	3	0	0	3
Water:						
Procurement	10	6	10	7	0	33
Inventory	4	0	1	2	0	7
Rationing	0	1	2	2	0	5
Decontamination	11	7	21	13	0	52
Storage	1	7	19	10	0	37
Preparation	1	0	2	3	0	6
Distribution	0	0	0	3	0	3
Consumption	1	3	6	3	0	13
Medical Care:						
Equipment	1	11	3	0	0	15
Personnel	0	1	1	0	0	2
Application	9	20	23	7	0	59

(This table is continued on the next page.)

Detailed Distribution of Content by Emphasis: In-Shelter Routine Operations (continued)

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
IN-SHELTER PHASE, Routine Operations, (continued)						
Sanitation:						
Teams	0	3	0	0	0	3
Disposal	27	12	29	14	1	83
Personal	2	0	1	0	0	3
Odors	2	0	3	0	0	5
Sleep:						
Scheduling	0	0	1	0	0	1
Equipment	3	1	1	0	0	5
Shelter Organization and Management:						
Social - Community Groups	1	1	0	0	0	2
Administrative - Task Teams	0	1	3	2	0	6
Shelter Command	2	2	2	0	0	6
Shelter Management	16	7	12	7	0	42
Communication:						
Equipment	2	5	8	3	0	18
Information (what)	1	18	21	11	0	51
Personnel	1	2	5	3	0	11
Operation	0	3	4	2	0	9

(This table is continued on the next page.)

Detailed Distribution of Content by Emphasis: In-Shelter Routine Operations (continued)

Content Categories	Emphasis in Content (Number of Content Units)					Total Number of Content Units
	Very Strong	Strong	Moderate	Weak	Very Weak	
IN-SHELTER PHASE, Routine Operations, (continued)						
Supply Management:						
Inventory	14	5	9	5	0	33
Storage	1	1	0	0	0	2
Personnel	0	0	0	1	0	1
Operation	1	0	0	1	0	2
Decontamination	0	1	3	0	0	4
Recreational and Service Activities	0	4	0	0	0	4

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APPENDIX A

(Content Analysis Categories).

CONTENT ANALYSIS CATEGORIES

I. Requisite Knowledge
   - A. Descriptions of Weapons
   - B. Descriptions of Explosions
   - C. Descriptions of Weapons' Effects
     1. Blasts
     2. Shock
     3. Fire
     4. Heat
     5. Light
     6. Fallout and Radiation
        - a. Appearance
        - b. Types
        - c. Time and Scope
        - d. Protection Facts
   - D. Knowledge About Shelters
     1. Shelter Organization
     2. Shelter Building: Structure and Configuration
     3. Shelter Location
     4. Shelter Facilities
        - a. Power
        - b. Ventilation and Filters
        - c. Communication
        - d. Blast, Heat, Fire, and Light Protection
        - e. Medicine (First Aid)
        - f. Water and Sanitation
        - g. Food
        - h. Clothing
        - i. Sleep
        - j. Illumination
        - k. Radiological Equipment and Protection
        - l. Recreation, Services, and Religion

m. Other

5. Signals

II. Action

A. Long-Range Protective and Remedial Action Without Public Shelter

1. Without Any Shelter

2. With Individual Shelter

a. Shelter Structure and Configuration

b. Shelter Location

c. Shelter Facilities

(1). Power

(2). Ventilation and Filters

(3). Communication Facility

(4). Blast, Heat, Fire, and Light Protection

(5). Medical Capacity

(6). Water and Sanitation Capacity

(7). Food

(8). Clothing Facility

(9). Sleeping Facility

(10). Illumination

(11). Radiological Equipment

(12). Recreation, Service, and Religious Facilities

(13). Other

3. With Family Shelter

a. Shelter Organization (Social)

b. Shelter Structure and Configuration

c. Shelter Capacity

d. Shelter Location

e. Shelter Facilities

(1). Power

(2). Ventilation and Filters

(3). Communication Facility

(4). Blast, Heat, Fire, and Light Protection

(5). Medical Capacity

(6). Water and Sanitation Capacity

(7). Food

(8). Clothing Facility

(9). Sleeping Facility

(10). Illumination

(11). Radiological Equipment

(12). Recreation, Service, and Religious Facilities

(13). Other

B. Short-Range Protective and Remedial Action Without Public Shelter

1. Signal Indentification and Reality Checks

2. Shielding, Etc.--With No Shelter

3. With Individual or Family Shelter

a. Preparation Time After Signal

b. Items to Take to Shelter

c. Movement to Shelter

d. Psychological Stress During Shelter Taking

e. Social Stress During Shelter Taking

C. Long-Range Protective and Remedial Action With Public Shelter

1. Shelter Organization (Social)

2. Shelter Capacity

3. Shelter Structure and Configuration

4. Shelter Location

5. Shelter Facilities

a. Power

b. Ventilation and Filters

c. Blast, Heat, Fire, and Light Protection

d. Medical Capacity

e. Communication Facility

f. Water and Sanitation Capacity

g. Food

h. Clothing Facility

i. Sleeping Facility

j. Recreation, Service, and Religious Facilities

k. Illumination

l. Radiological Equipment

m. Other

6. Management Skills Which Are Necessary

D. Short-Range Protective and Remedial Action With Public Shelter

1. Identification of Signals and Reality Checks

2. Preparation Time After Signals

3. Identification of Shelter

4. Assignment to Shelter

5. Items to Take to Shelter

6. Transportation Modes to Shelter and Movement Around Shelter

7. Psychological Stress During Shelter Taking

8. Social Stress During Shelter Taking

9. Managerial Tasks During Shelter Taking

RULES FOR CATEGORIZING IN-SHELTER PHASE

I. Entry Phase
   - A. Obtaining a Map of the Shelter
   - B. Preparing the Shelter for Occupancy
   - C. Filling the Shelter
   - D. Assumption of Command
   - E. Augmenting Shelter Supplies
   - F. Closing Shelter Doors
   - G. Setting up Temporary Shelter Organization
   - H. Initial Preparation for Possible Weapons Effects
   - I. Initial Protection Against Fallout
   - J. Initial Medical Care
   - K. Initial Fire Protection
   - L. Initial Water Provisions
   - M. Initial Preparations for Repair and Maintenance
   - N. Initial Preparations for Communications
   - O. Initial Preparations for Administration
   - P. Initial Food Provisions
   - Q. Initial Bunking Provisions
   - R. Initial Psychological Support

II. Routine Operations Phase
   - A. Radiological Protection
     1. Detection
     2. Monitoring
     3. Diagnosis
     4. Decontamination
   - B. Blasts - Protective Action
   - C. Heat (Therman Effects) - Protective Actions
   - D. Fire
     1. Prevention

2. Control

E. Security
   1. Tasks of Security Team
   2. Operation of Security Team

F. Safety
   1. Tasks of Safety Team
   2. Operation of Safety Team

G. Repair and Maintenance
   1. Tasks of Repair and Maintenance Team
   2. Operation of Repair and Maintenance Team

H. Atmosphere - Control

I. Temperature - Control

J. Food
   1. Procurement (How and What)
   2. Inventory
   3. Rationing
   4. Decontamination
   5. Consumption
   6. Assignment of Food Teams and their Tasks
   7. Storage (Location and Equipment)
   8. Preparation
   9. Distribution (Equipment and Procedure)

K. Water
   1. Procurement (How)
   2. Inventory
   3. Rationing
   4. Decontamination
   5. Storage (Location and Equipment)
   6. Preparation
   7. Distribution (Equipment and Procedure)
   8. Consumption
   9. Assignment of Food Teams and their Tasks

L. Sleep
    1. Groupings
    2. Scheduling
    3. Timing
    4. Location
    5. Equipment
M. Sanitation
    1. Assignment of Teams and their Tasks
    2. Operation of Teams
    3. Disposal
N. Medical Care
    1. Equipment
    2. Personnel
    3. Location
    4. Application
O. Power
    1. Control
    2. Equipment
    3. Operation
P. Illumination
    1. Control
    2. Operation
    3. Equipment
Q. Noise - Control
R. Odor - Control
S. Communication
    1. Equipment
    2. Information (What)
    3. Personnel
    4. Location
    5. Operation
T. Shelter Command - Operation

U. Shelter Organization
   1. Social - Community Groups
   2. Administrative - Task Teams
V. Social Control - Procedures
W. Supply Management
   1. Inventory
   2. Storage
   3. Personnel
   4. Operation
   5. Location
X. Psychological Support - Psychological First Aid
Y. In-shelter Training
Z. Religious Activities
AA. Recreational Activities
BB. Service Activities

II. Special Problems (Modifiers of Routine Operations)
   A. Shelter Capacity
   B. Overcrowding
   C. Shelter Type
   D. Shelter Configuration
   E. Shelter Characteristics
   F. Children
   G. Illness
   H. Aged
   I. Management Characteristics
   J. Special Behavioral Problems (Alcohol, Drugs, Emotionally Disturbed, etc.)
   K. Duration of Stay
   L. Emergencies

APPENDIX B

Shelter Information Questionnaire

AMERICAN INSTITUTES FOR RESEARCH

135 N. Bellefield Avenue, Pittsburgh, Pennsylvania 15232

Telephone: 683-7600

(Please print. All information will be held strictly confidential.)

1. Full Name: _____ 2. U. S. Citizen: Yes ____ No ____

3. Home Address (include zone or town): _____

_____ 4. Home Phone: _____

5. Occupation (describe fully): _____

_____ Business Phone: _____

7. Business Address: _____

8. Occupation of Head of Household: _____

The information contained in items 9 through 17 will be used by our research staff in order to determine how closely respondents approximate the country's population.

9. Sex: _____ 10. Age: _____ 11. Race: _____

12. Religion: _____ 13. Marital Status: _____

14. Age(s) of Children: Girl(s): _____ Boy(s): _____

15. Describe any leadership experience you have had (military or civilian): ___

_____

16. Civil Defense Experience: _____

17. Education: Grade Completed: _____ College Experience: _____

NAME: _____

Leave this column blank until questionnaire is completed.

SHELTER INFORMATION QUESTIONNAIRE

The purpose of the following questionnaire is to help us determine what the general public knows and thinks about civil defense. THE ANSWERS YOU GIVE TO THE QUESTIONS WILL HAVE ABSOLUTELY NO BEARING ON YOUR BEING SELECTED TO PARTICIPATE IN THE SHELTER STUDY.

Please answer all questions as honestly, accurately, and completely as you can. If you do not know an answer to a specific question, do not guess.

1. Within the last five years, have you or any members of your immediate family taken any steps for the purpose of improving your chances of surviving a nuclear attack?

   _____ YES _____ NO

   a. If you checked YES, describe the steps and indicate approximately when each was taken.

2. Do you recall reading any book, pamphlet, article, seeing any movie or TV program, or listening to any radio program that dealt specifically with the topic of civil defense?

   _____ YES _____ NO

   a. If you checked YES, list each item you can recall. If you can't think of the title, briefly describe the item in some other way.

3. Do you know what outdoor warning device will be used to alert this community in the event of nuclear attack?

   _____ YES _____ NO

   If you checked NO, skip to question 4. If you checked YES, answer questions 3a, b, c, and d.

column blank until questionnaire is completed.

a. Describe the outdoor warning device. Be as specific as possible. 3a. _____

b. How many different warning signals will be used to alert the population to an impending attack? _____ 3b. _____

c. What does each signal <u>mean</u>? (Answer for as many signals as you indicated were being used in the above question.) 3c. _____

d. What does each signal <u>sound like</u>? (Answer for as many signals as you indicated were being used.) 3d. _____

4. Is there a public fallout shelter (or more than one) located within 10 minutes walking distance of your home?

_____ YES _____ NO _____ DON'T KNOW

a. If you checked YES, describe it (or them): 4a. _____

Type of Building	Address

column blank until questionnaire is completed.

5. Do you know how to identify a public fallout shelter?

_____ YES _____ NO

a. If you checked YES, describe how a public fallout shelter can be identified. (Be as specific as possible in your answer.) 5a. _____

6. Do public fallout shelters contain any equipment or supplies provided by the Federal Government?

_____ YES _____ NO _____ DON'T KNOW

<u>If you checked YES, answer question 6a (not 6b). If you checked NO or DON'T KNOW, answer question 6b (not 6a).</u>

a. What supplies do you think <u>are being</u> placed in shelters? 6a. _____

b. What supplies do you think <u>should be</u> placed in shelters?

7. About how long do you think a normal, healthy adult could survive without eating any food, assuming he had water to drink? _____ 7. _____

8. About how long do you think a normal, healthy adult could survive without drinking any water or other liquids, assuming he had dry food to eat? _____ 8. _____

until questionnaire is completed.

9. Can you give a definition of the term "fallout"?

_____ YES _____ NO

a. If you checked YES, give as complete a definition as possible. 9a. _____

10. Do you know why fallout can be harmful to humans?

_____ YES _____ NO

a. If you checked YES, describe its harmful effects. 10a. _____

11. If a person has fallout on his clothing, is there anything that can be done to remove the danger?

_____ YES _____ NO _____ DON'T KNOW

a. If you checked YES, describe what can be done. 11a. _____

12. If fallout has gotten into water or food, is there anything that can be done to make it safe to drink or eat?

_____ YES _____ NO _____ DON'T KNOW

a. If you checked YES, describe what can be done. 12a. _____

13. On the average, how long do you think that people should be prepared to remain in a shelter in the event of nuclear attack? _____ 13. _____

14. Have you heard of a communications system through which the public would receive emergency instructions?

_____ YES _____ NO

a. If you checked YES, state the name of this communications system and describe how you would receive the emergency instructions. 14a. _____

Initials: _____

We would like to know how certain you are of the correctness of some of the answers that you have given. For this purpose, please look over your answers to all questions which have numbers in the extreme right-hand columns on pages 2, 3, and 4 of the questionnaire. Place a check after the number, if you are confident that the answer you've given to that question is correct. If you are unsure of the correctness of your answer, leave the line blank. Likewise, if you did not answer the question, leave the line blank.

After you have reviewed all your answers, please place your initials in the lower right-hand column of page 4, where indicated.

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13 ABSTRACT

This study of public information requirements for effective use of the shelter system is comprised of three separate but related parts. The first is an analysis of the types of items that make up the minimum required public information content for effective shelter system use. Public information in regard to threat warning, shelter-taking, and in-shelter survival is discussed. The audience for shelter information, the timing of shelter information campaigns, and the media for public information are also discussed. The second part of the report consists of a description of a shelter information study, in which 278 volunteers for AIR shelter research projects were interrogated on the nature and extent of their information and misinformation about shelter-related subject matter. Questions were asked about knowledge of warning signals, emergency communications, shelters and shelter supplies, fallout and its effects. The last section of the report contains the results of a content analysis to the public between 1959 and the present time. The purpose of the analysis was to discover the emphases and trends in the shelter-related guidance that the Government has made available to the public.

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14. KEY WORDS	LINK A		LINK B		LINK C	
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